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GLEANINGS IN BEE CULTURE

Vol. XXXV

September 1, 1907

No. 17



The view shows Brother Columban, of St. Mary's Abbey, Buckfast, Devon Co., England, in the act of instructing a novice in the science of bee-keeping. The Catholic clergy and the various brotherhoods have always been ardent promoters of bee-keeping.

The A. I. Root Company, Medina, Ohio, U. S. A.

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GLEANINGS IN BEE CULTURE

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E. R. Root, Editor A. L. Boyden, Advertising Mgr.
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I MEASURED worker-comb built by the bees at their own sweet will. Transversely there were from $23\frac{3}{8}$ to 24 cells in 5 inches; diagonally there were $24\frac{1}{4}$ to 25 cells in 5 inches.

COLD WATER is recommended (*Schweiz. Bztg.*, 258) as better than smoke to subdue bees. Apply in a fine spray with a large atomizer; use only in hot weather, and have the water always fresh. I tried it without great success.

SALTPETER RAGS are not so good if made too strong with saltpeter. When lighted there is too nearly an explosion, and the fuel has not time to light. Don't know just what is right; perhaps half a pound of saltpeter to a gallon of water.

"DON'T TRY to winter weak colonies . . . for a weak colony in the fall is usually a dead one in the spring," says E. W. Alexander, p. 1080. I can't say it any better, but I can say it over again, for some of you young chaps need to have it thrust in your faces at every turn, and then you can't be persuaded till you lose a good many colonies for several winters.

"BEES are believed to hustle in with greater energy to fill a vacant space made between partly filled sections in which they are at work than they will do where they are allowed to have their own way of working, or continually adding from the outside," page 1075. Yet, Bro. Doolittle, I understand that you have lately come to the conclusion it is always best to add empty sections over the others. Please tell us why.

THAT HAY CURE of Bro. Scholl for robbing, p. 1078, is the favorite one in this locality, only the hay is piled to the top of the hive. [We have used a good many times

this same kind of cure, only it happens to be wet grass. If robbers get to be very bad around a hive, clustering in festoons around the cracks between the cover and hive-body, we go around with a small dipper and a pail of water, and dash a little on each little cluster. A wet cloth laid over the top of the hive will do much to cool the ardor of such persistent robbers. Robber bees do not like to crawl under a wet cloth nor through wet grass. See editorial on this subject elsewhere.—Ed.]

DR. OHNMAIS secured for analysis 12 samples of foundation from 12 foundation-manufacturers. Only 4 samples were of pure beeswax; 2 labeled "Guaranteed of pure beeswax" contained ceresin; and 6 contained from 40 to 75 per cent of ceresin. — *Deutsche Bzcht.* German bee-keepers better emigrate to this country, where adulteration of foundation is practically unknown. [The makers of foundation in this country have always felt that, if they desire to kill their business, the quickest way to do it is to send out adulterated wax. Our national pure-food law now in force would make it very hazardous business to put out any but a strictly pure wax.—Ed.]

"HAS ANY ONE ever claimed that young bees spent their whole time in brood-rearing?" quoth ye editor, page 1067. I always supposed so, that and housework in general. And I always supposed that every bee did its stunt at it up to about 16 days of age. Kramer's point is that some *never* do housework — just loaf till time for field work. [How does Kramer *know* that these identical young bees *never* do any housework? Why, he would have to sit up night and day, and watch these same bees every minute of the time—a thing practically impossible unless it were done by a relay of different people.—Ed.]

THE YEAR 1907 keeps up its reputation as a freak year. The first white-clover blossom appeared June 3, but no indication of storing from it till June 28, when honey shook from brood-combs, and storing continued more or less weakly till July 21. Then bees barely

made a living till Aug. 10, when they started in on another spurt; but I don't know how much it will amount to, and I don't know how much of what is gathered comes from other sources than white clover. All this while white clover has been flourishing. and August 13 bloom appears as fresh and as plentiful as ever. Why didn't it yield during that three weeks July 21 to Aug. 10? Plenty of bloom in sight, neither too wet nor too dry, too cold nor too warm, at least not enough to account for the failure, but it just didn't yield.

"DON'T TRY to winter a queen the third winter," says E. W. Alexander, p. 1080. I wonder if there isn't a difference made by locality, strain of bees, or something. Twenty-four of my colonies this year have queens reared in 1904, and I don't see but they average fairly with others, some of them the best. I don't believe longevity in bees is appreciated as it should be. If six weeks is the average life of a worker in summer (lately the tendency is to discount that a little), and if it takes to the field at 16 days of age, then a worker that lives 48 days instead of 42 ought to gather 23 per cent more than the average. Even if it lives only a day more than the average, it ought to gather 104 pounds for every 100 pounds gathered by the average bee. If a strain of bees has queens that last three years and do good work, and another strain has queens that are good for only two years, would you not naturally expect that there would be a difference in the ages of the workers from the two queens? And how will you encourage long life in the workers any better than by favoring long life in the queens? The thing is worth thinking over.

"WHAT IS THE MATTER with sheep in a sheep-pasture when the hives are low down?" says J. E. Crane, page 1073. One year sheep were in the Hastings yard for a short time, and they shoved the hives off the stands. I congratulate you if you succeed, for sheep keep down the grass so nicely. The difference may be that in my case the yard was small and the sheep crowded; perhaps your sheep-pasture was large. This year I had experience in another direction. A sheep-pasture adjoins the Wilson apiary, and I've seen a sheep run frantically as if crazy with stings. Not many days ago, when I went to that apiary I found a sheep inside the apiary, hung in the fence, dead. I don't know whether it was stung to death, or driven by the bees to hang itself, but I don't believe it would have died if there had been no bees there. Cattle, horses, and hogs have all had a chance at my bees, and none have been so troublesome as sheep. But if the enclosure is large enough, none of them may do harm. [At our north yards sheep have access to the bees. The only trouble we ever had was when some of them lay down at night and shoved some of the baby nuclei off their stands. A neighbor having a lot of sheep was short of pasturage. Our basswood grove was growing up to weeds and underbrush. We finally effected an arrangement by which

the sheep have access to this grove. So far nothing serious has happened. Sheep have the range of the Vernon Burt yards, and he finds they keep the weeds down nicely around the hives; but they appear to have learned the trick of doing the "lawn-mowing" around the hives at night.—Ed.]

REFERRING to your note, p. 1068, Mr. Editor, admitting the laying of worker-eggs in Swarthmore cell cups and other places, is it not just possible that there is something about the position of the queen's legs or body when laying in a drone-cell, either complete or incomplete, that prevents the fertilization of the egg? All that, however, is aside from my point, which perhaps you did not get. It is this: If fertilization is entirely a matter of the queen's will, why does she not will to lay worker-eggs in drone-cells without the mouths of the cells being first narrowed? or does she sometimes do so? An answer to either or both those questions will be welcomed. In the several cases of worker-brood in drone-cells that I have known, the mouth of the cell was narrowed; but I've known only a few cases, and it may be that others have found drone-cells unchanged and still worker-brood in them. [We do not quite see how the conditions surrounding normal drone-cells can be any different (except to be worse) than those surrounding the Swarthmore artificial queen-cups which have no restriction of the opening, for, as a matter of fact, bees do not have time to restrict the openings, as the queen will often occupy them, so we are told, almost immediately. Some of the evidence that was submitted, unless I am very much mistaken, bore on the very point that you have called up—that the queen will lay worker eggs in drone-cells that are not restricted at the mouth.—Ed.]



THIS year there will probably be offered to the market considerable off-grade comb honey. The general poorness of the season, too much rain and too much drouth, will make a good deal of the honey travel-stained and a mixed lot, and many of the cells unfinished. For that reason a strictly No. 1 and "Fancy" should bring a greater difference between off-grade price and No. 1 and "Fancy" price. If the dealer fails to get the fancy at 16 and 17, let him try offering 18 and 20.

MORE IRRIGATION PROJECTS.

DEFINITE preliminary work has commenced on the Fort Hall Indian Reservation, in Idaho, to provide an irrigation system of

60,000 acres for the use of the Indians on it. Congress appropriated \$350,000 for this work at its last session. This is one of a number of irrigation projects for the benefit of the Indians, and has nothing to do with the work of the Reclamation Service, and for this reason is constructed solely at government expense. These Indian irrigation projects will probably become excellent bee-ranges, as they are primarily intended for the growing of alfalfa, and there is no likelihood of the owners cutting the hay before the blooming period. Congress has recently provided for several projects of this kind for the express benefit of the Indians.

APIARIES IN NATIONAL FORESTS; HOW UNCLE SAM PROPOSES TO PROTECT BEE-RANGES.

The Forest Service at Washington has sent us a copy of their "Use Book," which contains in a condensed condition the rules and regulations of the national forest reserves, and also game-refuge reserves. To many of our readers this book will be of considerable value, as it supplies official information on points which interest them.

We note, for example, on page 44, provision is made for regulating the number of apiaries on forest reserves so that the bee-keeper on government land is protected against overstocking.

HONEY-CROP CONDITIONS AGAIN.

We are of the opinion now that considerable medium and off-grade honey east of the Mississippi has been secured—perhaps as much as last season; but that is not saying very much, for that was a light year. In some sections of the West it is reported that there will be a larger and better crop of alfalfa honey this year than for several years back. But this will not affect eastern prices in any event. As we have pointed out elsewhere, the amount of fancy and No. 1 Eastern comb honey will be exceptionally small—smaller than a year ago. Dealers will have to offer better prices if they expect to get it. There is no reason why a bee-keeper should sell at as low figures as last year. Those who have honey ready for sale should let the fact be known. Do not wait until every one else is ready to unload.

There seems to be a tendency on the part of some dealers in honey to offer no better figures than last year. Such quotations will not get much honey. It is bound to command a higher price. Taking the country over, the crop has been light, and, moreover, the heavy losses of bees during the late winter and unfavorable spring have put many bee-keepers out of business, or so crippled them that they will have no honey for sale. Another thing to remember is that fruit is scarce, and this fact always favors an advance in honey; and, lastly, the national pure-food law is in operation, cutting out all spurious imitations of honey, leaving the genuine article a free swing.

HONEY FROM LOCUST.

THE black and honey locust-trees are more popular in Europe than in their own native America, and some of the bee-keepers over there get a crop of acacia (locust) honey. A bee-keeper at Bourg-Leopold, Belgium, put a hive on scales this season when locusts were in bloom, with the following results, carefully tabulated. The kilogram is $2\frac{1}{2}$ lbs.

Date.	Weights at night.	Loss.	Increase.	Weather conditions.
May 26	Kilos. 50.500			Good.
June 4	" 49.250	1.250		Cloudy.
" 5	" 50.450		1.200	Cloudy and hot.
" 6	" 50.500		.500	Cloudy.
" 7	" 50.600		1.000	Fair.
" 8	" 52.500		1.900	Cloudy.
" 9	" 57.800		5.300	Fair and hot.
" 10	" 60.200		2.400	Fair and hot.
" 11	" 63.500		3.300	Good.
" 12	" 65.500			Overcast, rainy.
" 13	" 65.300			Overcast, rainy.
" 14	" 64.500		1.000	Overcast.
" 15	" 66.000		1.500	Overcast, stormy.
				16.750
				1.250
				15.500

The $15\frac{1}{2}$ kilos obtained equal about 34 lbs., or at the rate of 2 lbs. a day. The above is translated from *Le Progres Apicole*.

THE NEED OF A PURE-FOOD LAW IN FLORIDA.

THE *Florida Agriculturist* laments the want of a pure-food law, in the following words:

We had hoped that our legislature would pass a pure-food law. We saw a statement in one of our State exchanges that such a law was passed; but in all the lists of laws which we have seen no such bill appears. They did pass one amending the pure-stock food law, making it stronger. This was all right. We do not object to that, but we do say that it is a great reproach to our legislators that they thought more of their horses, mules, and cows than they did of their wives and children, to say nothing of their own stomachs. We have not the slightest doubt that there are thousands of dollars of goods stored in this State which could not be sold if a pure-food law had been passed, nor could it be shipped out under the United States law.

The friends of pure food in the South ought not to rest till the necessary legislation has been provided, which will protect the consumers against all food frauds.

GLUCOSE GETS ANOTHER SLAP.

GLUCOSE gets slaps from all directions. The latest appears in the *Louisiana Planter* as follows:

It is manifest that, under the pure-food laws, Louisiana syrups and molasses, when of fine flavor, are bound to come more into general use. The tasteless corn syrups that have been used as a foundation on which to add a little color and flavor and thus stimulate Louisiana molasses and syrup and maple molasses and syrup, can no longer be sold in the open. They must now bear the brand of Cain upon their brows and be recognized by all men.

Out in the parish of Lafayette, where considerable attention of late has been given to the manufacture of cane syrup, the industry is attracting still more attention; and from the *Lafayette Gazette* we learn that a cane syrup company has been organized with a capital of \$25,000 for the purpose of manufacturing cane syrup at Youngsville in that parish. We certainly wish this new corporation success, and believe that we ought to have hundreds of such in our State, which, with the excellent produce that they can secure, and

the vast market that presents itself among the eighty millions of people in our country, ought to make such ventures quite profitable.

It is hardly possible to estimate the damage done to syrup-makers and honey-producers by glucose masquerading under assumed names. Bee-keepers will in future have to compete with real syrup; but there is no reason why we should be alarmed, as fair open competition can not hurt us. Honey stands so high above all competitors that it is likely to hold out for all time.

TREE ALFALFA, OR TAGASASTE (*Cytisus proliferus*).

THIS is quite a different plant from alfalfa, though it is as popular with bees as its namesake. Rambler mentioned it as a great bee-plant in his California rambles. It makes a good hedge, as it belongs to the broom family. A writer in the *New Zealand Farmer* gives excellent directions as to the cultivation of tagasaste for hedges, as follows:

To obtain the best results the seed should be sown in early spring; and to assist germination it should be first steeped in very hot water (not boiling), to which a little washing-soda is added. Pouring on the water and letting it stand till quite cold will suffice to soften the seed, and, after straining, the addition of a little dry sand will separate it nicely for sowing. It is important that seeds treated in this manner should be sown immediately.

The ground should be thoroughly worked (as for onions), and if, as is to be recommended, a double row is contemplated, the width of the prepared bed should not be less than 4 ft. Sow the seed three in a place at a distance of 3 ft. apart and 1 ft. from edge of bed on either side, alternating the second row with the first. This gives a distance of 2 ft. between the rows. Thin out the plants as they advance, to the strongest in each place, and during the year keep the clippers constantly at work to promote a dense base. Cutting must not be neglected if a good close hedge is required. It also tends to prolong the life of the plant by curtailing its free-flowering and seed-bearing propensities.

PARCELS POST AND THE BENEFIT IT WOULD BE TO BEE-KEEPERS.

IT looks just now as if the next great political battle would be over the passage of a law providing for the inauguration of a parcels-post service. The new Postmaster general, who must be well acquainted with European parcels-post systems, is supposed to be favorable, and no doubt President Roosevelt will aid all he can.

John Wanamaker, who was one of the best postmasters-general the United States ever had, once said there existed six great obstacles to a parcels-post, by which he meant the six express companies. This is not quite true, however, for the express companies have since that time been very busy in creating a sentiment in their own favor, and it is well known that one Senator remains in the Senate merely to see that the parcels-post idea is not carried out. This will be a farmers' battle against the railroad owners and their friends.

Of course it is said a parcels post would not pay; but that is poor a argument, for the Adams Express Company recently declared a dividend of 213 per cent, of which 200 per

cent was given in new stock and 13 per cent in cash.

Bee-keepers would be greatly helped by the establishment of a parcels post, for in Europe the bee-men make a liberal use of it, sending in many cases both comb and extracted honey to retail purchasers.

LIPPIA, OR CARPET GRASS, IN CALIFORNIA.

AS GLEANINGS was probably the first journal to give lippia a write-up such as it really merited, we are glad to note that it is making so much headway in California. It is one of the best honey-plants that grow in the Golden State. The following from the *Pacific Rural Press* explains itself:

Edward F. Adams, who is a discerning amateur in the growth of ornamental plants in his garden near the Golden Gate Park, in San Francisco, makes the following contribution to knowledge of the availability of *Lippia repens* for lawn purposes:

Lippia, the new lawn plant introduced within a few years, is making great headway in the State. During the greater part of the year it looks quite as well as grass, and does not require half the water or one-tenth of the attention. The one objection which the writer has found is its persistent determination to rest during about two or three months of the year, when it is not at all pretty to look at. One or two cuttings during the summer with the lawn-mower is quite sufficient; and if it be left with a pretty good growth in the fall the plant will remain reasonably green a long time after it has stopped growing. In the end, however, it will turn brown and must be cut off, when it may remain for some little time without showing any green. It depends on the spring. This very cold spring the lippia did not start to grow in this city until about the middle of April of April; but the writer's plot is situated on a hill in one of the coldest spots in San Francisco. In warmer parts of the State the brown period is probably much shorter than in this city. To get a good lawn in the first year the plants should be set about six inches apart each way, although in places warmer than this city the plants may cover the ground the first year if set a foot apart. Lippia likes a reasonable amount of heat, and in San Francisco it is rather slow in covering the ground, and rather scanty in growth in shaded spots. It is said that it can smother most weeds and grasses, as to which we do not know, for we have pulled all weeds as they appeared. Some of the papers are calling lippia a grass, which, of course, it is not. It belongs to the *Verbenaceae* family. It is claimed by some that it will "thrive" on the poorest soil and almost without water. We do not think so.

SULPHUR DIOXID IN FOOD.

As we predicted, the syrup and glucose people would be struck very hard by the new pure-food laws, both State and national. The Board of Food and Drugs Inspection has issued a ruling in which manufacturers of syrups, sugars, and other foods are informed that the amount of sulphur dioxide must not exceed 350 milligrams per kilo or liter (quart), or .035 of one per cent; and, furthermore, the presence of sulphur dioxide must be stated on the label. This ruling will hit the syrup-makers very hard, and it is problematic if they can continue to do business. It is needless to say they are excited about this new move. This ruling also affects the dried-fruit men very much, as they hardly know how to do business without the fumes of burning sulphur. We believe, however, the Department of Agriculture is actuated by the highest motives in making this decision, for it is unquestionably true that it takes but a very small portion of the powerful chemicals produced by sulphur to affect adversely the human system, especially those whose constitution may be weak, such as children and invalids. The desire to produce and sell "cheap" foods is responsible for the death of an enormous number

of people annually; besides, it is unfair to the producers of purely natural foods to allow these imitations to sell freely. When compelled to do so we will find a way of producing excellent syrups without using chemicals. The United States can produce a vast deal more honey if the price is slightly raised. There will not only be more of it but it will be better in quality; but the beekeepers of this country must not be compelled to compete with artificial products that are far inferior to honey. The words "sulphur dioxid" on the label will cause educated mothers to pause before offering the contents to their children. "Doctored" foods have had their day, and we hope the decision will be allowed to stand.

THE VALUE OF THE ROBBER-TRAP; HOW IT
CAN BE USED TO OBLVIATE THE ROB-
BING NUISANCE.

At this time of the year it often happens, even in a well-regulated apiary, that a weak colony may be suddenly overcome by robbers. In some cases it is, perhaps, best to let the rascals finish up the job; for to take away the hive or to close the entrance will only have the effect of causing an attack of every other weak colony in the yard. Many bees will be killed, resulting in a general disturbance throughout the apiary. For several days thereafter the apiarist will be compelled to work with extreme caution. Experience has shown us that in some cases, at least, when a colony has been nearly overpowered, or quite so, it is best to let the robbers finish up the job, when they will be inclined to go home, although they will be more or less annoying for several days afterward.

Very lately we have found a remedy that does away with the whole trouble, and that, too, within a very few hours. This consists simply of the use of a robber-trap. This is nothing more nor less than an ordinary hive having a contracted entrance and a bee-escape on the inside, so placed that bees can pass in readily but not out. A long wire cloth with a gradual taper is better than any other form of escape, for this purpose at least.

We will assume that a bad case of robbing has suddenly developed in which the colony or nucleus is nearly overpowered if not entirely so. If the attack is confined to the one colony, the problem is much simpler. In that case we remove the attacked hive immediately, and put it down cellar with the windows all darkened but one, so that the bees that do not belong in the hive can escape and go back. On the stand of the hive of the colony removed we put the hive with the bee-escape on the inside of the entrance, or what we will call our trap, when, presto! all the robbers will rush into this hive and be imprisoned. It is only a matter of an hour or so before they are all caught; and what was once a perfect uproar in the yard will now be as quiet as though nothing had ever happened. When this condition prevails, or toward nightfall, the attacked colony that

was put in the cellar is put back on its own stand, but with its entrance contracted down to a space so that only one bee can pass at a time. A frame of young bees is shaken into the hive, and nearly all the honey is taken away, if any is left, and in its stead will be given a cake of hard dry candy. The robber-trap, with its gang of mischief-makers, is now put down cellar where it will be cool, and where there will not be much danger of suffocation. Strips of broken sections, or any pieces of wood not more than one-eighth inch thick, are now carefully slid between the cover and hive-body containing the confined bees. One of these is placed at each of the four corners. This will make a gap of one-eighth inch between the cover and the hive, or a crack just too narrow for the bees to pass through. This is to give the bees ventilation; and a cellar is just the place to put a lot of confined bees. After being confined for two days they may require to be fed. We would advise keeping them shut up for a week, or, better, take them to an out-yard or some location about two miles away from the scene of their recent powwows. Give them a queen or queen-cell, and let them start housekeeping.

It is bad practice to allow a lot of robbers that have once had a taste of stolen sweets to remain in the yard. For days and weeks afterward, they will follow around, hectoring other colonies and the apiarist as well. If any hive be opened they are ready to pounce upon it. Instead of letting them have their liberty again it will be actual economy to brimstone them; but, of course, it is better to take them to an out-yard or some spot away off by themselves. This robber-trap idea was originally suggested by J. F. McIntyre, of California, and it is a wonder beekeepers have not made use of the device more than they have. Queen-breeders especially will do well to have a trap handy.

Of course, if robbing in the yard should be general, involving nearly every colony, the trap plan will not be effective.

MOST OF THE ROBBERS FROM ONE OR TWO
COLONIES.

In this connection it will be well to remember that a great proportion of the robbers, if the robbing has only just commenced, will come from only one or two of the colonies. Track them back to their homes by sprinkling flour on them; and if they belong to one or two hives only, shut the entrance at night and tote them off to some isolated spot. In that case it may be well to unite the two of them so they can not rob from each other.

The colony that has a tendency to rob is often one that has bees that are good workers. We found this to be true of the bees of our red-clover mother 25 years ago. They would gather honey and keep their hives full when other bees were starving, and, what was more, they were the worst robbers we ever saw. Their mania for getting sweets caused them to make no discrimination between that acquired by honest toil and that actually stolen outright.

THE QUESTION OF HONEY-LABELS AGAIN,
AND THE POSITION OF THE BOARD OF
FOOD AND DRUG INSPECTION.

IN our issue for Aug. 1, page 1009, we published a letter from Secretary Wilson and two government officials on the subject of the proper wording to be used on honey-labels when the honey was bottled by some one other than the producer. It will be recalled that we presented some arguments in favor of the phrase "put up by," as against the other phrase, "distributed by," which latter seemed to have the approval of Secretary Wilson and his colleagues. We sent a copy of that editorial to Frederick L. Dunlap, acting chairman of the Board of Food and Drug Inspection, asking whether or not, in view of the further evidence presented, the Board would not sanction the wording "put up by" for all cases where honey was bottled by some one other than the producer. We received a letter from Mr. Dunlap, but it came a little too late for insertion in our Aug. 15th issue, and therefore we present it at this time.

U. S. DEPARTMENT OF AGRICULTURE,
BOARD OF FOOD AND DRUG INSPECTION.
Washington, D. C., Aug. 7.

Mr. E. R. Root:—I have noted with interest what you say about the labels which have already been printed containing the phrase "put up by," and that this expression has always been understood by the bee-keeping trade, producers, and bottlers generally, as meaning "packed by" in the sense that the honey was bought of some one other than the packer, and prepared for market. While this interpretation of the phrase "put up by" is understood by the trade, bottlers, and producers, in the sense that you suggest, yet the Food and Drugs Act requires that the label shall bear no statement that is misleading in any particular. Of course, this means misleading to the purchaser or consumer, so that it reduces itself down to the question whether or not the phrase "put up by" is understood by the consumer to mean the same as you state it is understood to mean by the beekeepers, bottlers, and producers. This is, it seems to me, the kernel of the whole question. In order to differentiate between the actual producer and the one who is not the actual producer, but yet desires his name on the package, suggestions have been made that in the latter case the words "prepared for," "manufactured for," "distributed by," etc., be used.

I do not see on what grounds it would be possible for the bee-keepers who bottle their own honey, sell it under their own label with their own names attached, and then later, when their own supply of honey is exhausted, buy from other producers and bottle the product thus obtained, to sell it under the identical label that they used in the first case where they were the actual producers of the honey. In other words, the phrase "put up by" is not sufficiently explicit to be of much significance to the ordinary consumer. It does not differentiate between the actual producer and the one who is not, which differentiation is necessary.

I do not see that it is possible to get a phrase which would be satisfactory, and cover alike the honey produced by the bottler and that which he buys of some one else. Any such phrase that would be satisfactory to the bottler would be misleading to the public because it would leave them absolutely in the dark as to whether the bottler were the actual producer or bottled the product of the apiary of somebody else.

Respectfully,

F. L. DUNLAP, *Acting Chairman.*

Mr. Dunlap draws attention to the fact that the national pure-food law, among other things, will not allow a statement on the label that is in any sense misleading to the consumer. It is possible that the latter would be misled by the phrase "put up by;"

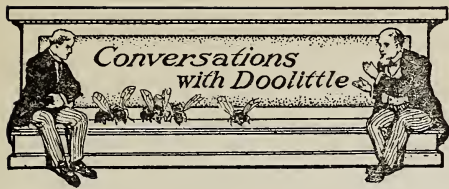
but it is our opinion that he would not; but in this we may be mistaken.

As a matter of fact, three wordings have been used on honey-labels. When the bottler is the producer he uses the phrase "produced by" or "from the apiary of." But when the honey does not come from his bees he uses the phrase "put up by," providing he is honest; and under the new law it will not be safe for him to be otherwise. Moreover, it has long been customary to use the words "put up by" on labels covering honey both produced by and purchased by the undersigned on the label. The question, as Mr. Dunlap now says, hinges on whether or not the consumer does understand and has understood these distinctions. We are of the opinion he does.

In relation to the question whether it is practical to use one label on a honey which one may take from his own bees and that which he might buy, it would seem to us that the words "distributed by," if officially sanctioned by the Board, might be used without defrauding or misleading. If one were a producer, and used the words "distributed by" on his honey, the language would not convey to the consumer the impression that he was buying a better article when he was not; for it should always be understood that, when one knows the honey comes from his own bees, he has direct knowledge that the same is not adulterated. Therefore, if he does not claim more than he has a right to, he is not deceiving his customer into buying an inferior article. Nay, rather, he is giving him a better one.

It had not previously occurred to us that the words "distributed by," however objectionable, could not be used on the two kinds of honey. If it be necessary for the average bee-keeper to have two sets of labels, one to use on honey of his own production and another on a product that he buys, it would entail an extra expense and no little inconvenience. To be compelled to use two different labels on a honey that is identical in quality and flavor to any other honey would at once convey to the consumer the impression that one lot was not as good as the other, or at least different. All the consumer wants to know is that he is getting a honey that is identical in quality and flavor to that which he had before. He does not care whether it is produced by the bottler or some one else equally competent to produce the same article.

However much some rulings may inconvenience some honest people, it is a matter of gratification that the authorities are over-strenuous rather than too lax in the interpretation of a law that is doing and will do more for the bee-keeping industry than any other piece of legislation that has ever been enacted. A little laxness at the start might practically nullify the law entirely. If we can not get just what we want we will take what we can get and be very thankful. In the mean time we shall not despair of a ruling favorable to the phrase "put up by" in the sense indicated.



BEES SWELLING, ETC.

"Good morning, Mr. Doolittle. Basswood now in full bloom this the 27th day of July. How is that for a late season?"

"Latest I ever knew. Are the trees yielding any nectar in your locality?"

"Basswood has yielded finely for us during the last three days; and if this hot muggy weather continues it looks as if we might get a good yield of white honey in spite of the drawbacks heretofore. But, say—did you ever notice how a colony of bees seems to swell when a good basswood flow comes on? how a colony that seemed comfortable in the hive, just before this, now can not find room to work, so they pile out of the hive, especially toward night on warm days?"

"Yes, I have noticed this scores of times."

"I put on the supers at once; but I want to know why the bees swell so, as soon as a good flow of nectar is on."

"You did the proper thing in putting on the sections or supers; but why the bees swelled is something which very many fail to think any thing about."

"What makes you think that way?"

"Because many of our ablest bee-keepers have told us, during the past, that the workers which come in loaded from the fields deposit their nectar immediately in the cells of the comb, arguing that, for this reason, there should be a direct passage from the outside of the hive to the suplus arrangement, so the field bees may be saved the trouble of crowding up through the massed bees in the brood-chamber to get at the empty cells in the supers in order to unload."

"I have such direct passageways to my supers; don't you?"

"No."

"Why not?"

"The answer to that comes with the answer to why the bees swell when a flow of nectar comes on. The reason for the bees swelling lies in this fact: Before the honey-flow there was no nectar in the honey-sacs of any of the bees in the hive, hence the segments of the abdomen telescoped over each other, thus contracting the abdomen to the smallest possible space, thus allowing thousands of bees to mass themselves in the smallest possible space. When the honey-flow comes on, the field bees give their loads of nectar to the hive bees, which causes their abdomens to be drawn out, as it were, the same as a telescope is drawn out, in order that the now filled honey-sacs may find room for the necessary expansion. And thus it comes about that two bees now occupy the place of that occupied by three or four be-

fore the flow of nectar was on, and only as room is given can they be kept from crowding out on the outside of the hive, providing the hive was filled with bees before the nectar yield came on."

"Then you claim that the field bees give their loads of nectar to other bees instead of depositing it in the cells."

"Yes."

"What do these other bees do with it?"

"They hold it till it is properly evaporated, when it is deposited in the cells, more taken from the field bees again, and so on till the honey season closes, when all is deposited in the cells, and the abdomen telescopes back together again, and the colony assumes the same massed condition as at first."

"Well, if this is so then that entrance to the supers is surely unnecessary. But does not this swelling of the bees bring on swarming?"

"Has much to do with it, in all probability."

"Then why does not the giving of room at just the right time, when this expansion or swelling begins, stop swarming?"

"It will."

"But it does not. No matter how much section room I give my colonies they will insist on swarming."

"But you are simply giving the bees empty space. Just fill that space with empty comb and you will find that the bees will not swarm. Listen to what that veteran bee-keeper, Moses Quinby, wrote: A large amount of room filled with empty comb will entirely prevent swarming; and years of experience and experimenting has proven that Mr. Quinby was right. Let me illustrate this thing for you a little further: Let a strong colony occupy a drygoods box, the same being four feet square on the inside, they having a space of only about 2000 cubic inches occupied with comb, and that colony will swarm, notwithstanding all the room there is in the box. But if the whole box is filled with comb, no swarm will issue under the conditions described. Later on in the season, should there ever come a time, through a continuous honey-flow, for months, when the combs in the whole box are fully occupied with bees, brood, and honey, there might be a possibility of a swarm issuing, but not a probability."

"That is something I had never thought about, and something I have never tried. But there is one other thing I wish to talk about before I go home. It is this: When trying to stop all after swarming I open the hive and cut off all the queen-cells, but one, saving the best-looking one. Is that a good way?"

"Such a course will do, but I do not like the plan. In the first place, it prohibits the shaking of the bees off the comb that has the cell on which is to be saved; for should you shake the frame, the inmate of the cell will too often be injured to make it safe for you to do so. If she is thus injured you will not have a good queen to head that colony, no

matter if you have picked out the best cell."
 "But suppose I do not shake the bees off any of the frames."

"If you do not shake the bees off their combs, then you must brush them off, which is a job I do not care to undertake at a time they are the most prone to resent such treatment."

"Why shake or brush at all?"

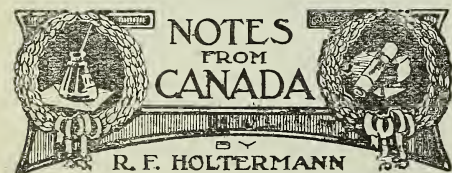
"Because if you do not there is a reasonable possibility that some cell will be overlooked by being under some cluster of bees, or hidden away in some out-of-the-way place which the bees help to make obscure. If you miss a single cell besides the one you intend to save, the thing you are wishing to avoid (after-swarming) will as surely result as though you did not try to eat the cells at all."

"I see. Have you any other objection?"

"Yes, we are not always blessed, as a rule, with apiaries in which every colony in the same is the best of stock; hence if we adopt this selection-of-cell plan we will be continuing inferior stock in our apiary."

"That is right. Strange I had not thought of that. How do you work?"

"Under such conditions as we have been talking about I much prefer to rear queens from my best stock, planning so the cells from which these queens will emerge will be about ripe when the cutting of cells will be likely to occur, when after all the cells are off, before closing the hive, I insert one of these cells with an assurance of a really good queen, not given by any other plan from queen-cells with which I am acquainted. Besides, if we have planned rightly the queen from the inserted cell will be laying a day or two earlier than would be the one from a selected cell, which will make a little gain in this matter."



NORMAL HONEY FREE FROM GERMS.

Lately Edinger has discovered that *potassium rhodanate* is the active principle in saliva which destroys germs in food when well masticated, but it is harmless to the individual. The germicidal properties of saliva as exhibited during recent experiments were remarkable, for in a solution of three parts to the thousand the bacilli of cholera morbus were destroyed in a minute, while the diphtheria bacillus was destroyed in the same time by a solution of three times that strength. This strongly upholds my theory that the head secretion added to nectar by the bee is a germ-destroyer and a preventive of germ development in honey.

We also learn more than ever the importance of eating and drinking slowly, and the

more so when we are in strange places, where neither food nor water may be free from germs injurious to health.

RED OR BLIND LOUSE PARASITE.

"Has any one noticed how very prevalent has been the red or blind louse parasite on queens this year? I have noticed some queens only three weeks old covered with these vermin.—AMATEUR, Cheltenham," in *British Bee Journal*, Sept. 6, 1906. I remember these parasites on queens some 27 years ago when I was with D. A. Jones. They, no doubt, were imported with queens from the island of Cypress and from Palestine. Since that time I have never seen such a parasite. The creature having been imported, and not spread, there must surely be something in our climate which does not agree with them.

SIDE-OPENING VS. TOP-OPENING HIVES.

In L. Stachelhausen's article on page 1009, *GLEANINGS*, 1906, he states many good things. He has sent for many samples of self-spacers for frames. I, too, have sent for the samples. The one I prefer is not there illustrated. It is a brass-headed nail which drives to the head, the latter being broad at the base, and sloping toward the crown to prevent the nail-heads from catching on neighboring top-bars. I prefer this to a staple. He states, "In a top-opening hive, or one which is operated from one of the ends, the correct place for the spacer is on the hive." I could not be induced to use such a spacer at all.

WHAT IS INSTINCT?

To me instinct in animals, including bees, simply means that these naturally follow a law implanted in them when created, as recounted in Genesis; so seen, all is to me easy to comprehend. Scripture (Heb. 11:3) speaks of "science falsely so called," and states, "Through faith we understand that the worlds were framed by the word of God, so that things which are seen were not made of things which do appear." Science will never master the question; but through faith, those which have become as little children may.

PROPOLIS.

On page 484 J. L. Byers gently raps me over the knuckles for advising rubbing a little propolis on the fingers before touching a queen. He states, "Dear me! the problem with a number of us has been how to keep the propolis off our fingers." I can largely solve this for our friend. Scrape every part of the hive in the spring. If Mrs. Byers did not clean house occasionally—but, enough said. That has more to do with the matter than locality; 'fess now, Byers (and others), if propolis is so very troublesome you do not do this in the spring.

CARNIOLAN BEES.

Friend Byers in the same article gives his experience with Italian and Carniolan bees

for building up. He gives bees with Carniolan blood a long preference for building up this spring. I never saw as conspicuous a difference as this spring, and all in favor of Carniolan blood for building up; and yet last week I had a letter from a good bee-keeper who states that they are all right for building up, but no good for honey-gathering. The explanation must be that the hive was too small or the super room insufficient. Carniolans can not be run in this way; and if they break to pieces swarming, the honey will not be obtained. Again, if they are kept from swarming when they have the impulse, they resent such treatment more than other varieties.

WHITE-HONEY FLOW.

The white-honey flow is over, and the crop will be from very little in some localities to excellent. There is this, however, to remember: The market was absolutely bare of old honey. The heavy winter loss two years ago wiped two-thirds of the bees out. A year ago swarming and increase were very moderate. Last winter, and the spring, again, wiped out half or more of the remaining bees; the crop, therefore, will not be large. The United States is, perhaps, much like ourselves as to loss of bees. The flow there has generally been poor, and all the honey it has produced will sell at a high price. The duty on honey into Canada is 3 cents per lb. Fruit is high, and the price of honey will be higher than in many years.

Gleanings from Foreign Fields.

BY W. K. MORRISON.

In connection with the show of the Confectionery trades in the Royal Agricultural Hall, London, England, there will be a bee and honey show, Sept. 7—14. The cash prizes amount to nearly \$480 00. Silver and bronze medals are also offered.

Dr. Miller thinks the Swiss favor the blacks altogether; but M. Ruffy, some time ago, obtained the votes of 204 bee-keepers as follows: 95 for crosses (hybrids); 90 for blacks, 12 for Italians, and 7 for Carniolans. It ought to be remembered that the leather-colored Italian is a natural cross or hybrid between the yellow bee of the plains and the black of the mountains, and, like all crosses, has greater size and more stamina than the originals. It has more Italian blood than black, and reverts back in this country to the original yellow stock.

A NEW BEE JOURNAL.

Australia has a new bee-journal bearing the significant title, *The Commonwealth Bee-keeper*. It has hitherto formed a part of the *Fruit World*, but now feels able to walk alone. And by the looks of the first number it can do it, as the subject matter is original,

and well printed on good paper. It has the true Australian flavor about it too. The editor and publisher is W. L. Davey, of Melbourne, who is thoroughly posted on the bee-keeping industry of the antipodes, and who is likely to make a distinct success of his new enterprise if any one can.

The Australians have their troubles as well as we, in that land of the kangaroo. According to *The Commonwealth Bee-keeper* there is some danger of legislation being enacted which will allow the valuable native forests to be destroyed by "ring-barking." This practice is about as disastrous as a forest fire is with us. It has been the practice of the Australian government to parcel out the land in vast ranches to capitalists who forthwith destroy all trees by a process known as "ring-barking." It is needless to say there is a class who want this plan continued till all the land is taken up. The bee-keepers want this stopped, as the principal forest trees of the Australian continent are honey-bearing. It is to be hoped they will succeed.

Owing to the death of its owner, *El Colmenero Espanol* (The Spanish Bee-keeper) was discontinued some time ago. A new paper, the *Gazeta Apistica*, published at the same address, has just appeared to take its place, and Spain again joins the ranks of modern apiculture.

Almost simultaneously with the foregoing has appeared *La Apicultura Espanola*, also published at Barcelona, Spain, Gerona, 181. M. Pous Fabreques is editor.

We learn from *Corrispondenza Apistica* that a new bee-journal has recently been started in Rome, Italy. It is styled *L'Avenire Apicolo*, and it is edited by Prof. G. Bonafede, of Rome. The address of the new aspirant for apicultural honors is 168 Via Principe Amedeo, Rome.

BEE-JOURNALS IN THE GERMAN LANGUAGE.

"Allgemeine Zeitung für Bienenzucht," Konstance, Germany.

"Bayerische Bienen- und Obst-bauzeitung," Neumarkt, Germany.

"Bienenwatter," Vienna, Austria.

"Das Bienenwirtschaftliches Centralblatt," Hannover, Germany.

"Bienenzeitung," Limpertsberg bei Luxemburg, Luxemburg.

"Bienenzeitung für Schleswig-Holstein," Husum, Germany.

"Der deutsche Imker aus Böhmen," Prag, Bohemia, Austria.

"Deutsche illustrierte Bienenzeitung," Leipzig, Germany.

"Die Biene," Uschaffenburg, Germany.

"Die Biene," Hirzenhain, Hesse, Germany.

"Die Bienenpflege," Husting, Württemberg.

"Die Biene und ihre Zucht," Durlach, Baden, Germany.

"Die Deutsche Bienenzucht," Ostmannstedt, Thüringen, Germany.

"Die Europäische Bienezucht," Scherz-
ingen bei Konstanz, Germany.

"Elsass-Lothringscher Bienezüchter,"
Strassburg, Germany.

"Illustrierte Monatsblätter für Bienezucht," Klosterneuburg, bei Vienna, Austria.

"Leipziger Bienezzeitung," Leipzig, Germany.

"Mitteilungen über Bienezucht," Linz, Austria.

"Münchener Bienezzeitung," Munich, Bavaria, Germany.

"Neue Bienezzeitung," Marburg, Germany.

"Neue Schlesisches Imkerblatt," Breslau, Germany.

"Oesterreichisch-ungarisch Bienezzeitung," Vienna, Austria.

"Palzer Bienezzeitung," Rehborn (Palz), Germany.

"Pommerscher Ratgeber," Stettin, Germany.

"Prastischer Wegweiser für Bienezucht," Oranienburg, Germany.

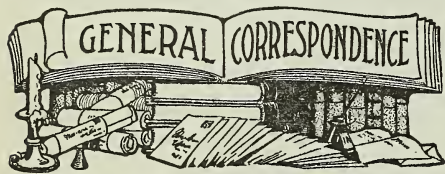
"Preussische Bienezzeitung," Heilsberg, Prussia, Germany.

"Rheinische Bienezzeitung," M — Gladbach, Germany.

"Schweizerische Bienezzeitung," Ulstaten, Switzerland.

"Steierischer Bienvater," Gratz, Styria, Austria.

"Ungarische Biene," Budapest, Hungary.



A PLURALITY OF QUEENS IN A COLONY, WITHOUT PERFORATED ZINC.

How the Queens are Introduced; the Advantage of the Plural-queen System.

BY E. W. ALEXANDER.

[This is the long-expected article for which many of our readers have been anxiously waiting. Now that it has come, some of the statements are so startling that, had they come from any less authority than our correspondent, we should feel inclined to lay it aside to think it over, if not pigeon-hole it altogether. But instead of saying, "No, it won't work," our readers are requested to try it and report. The immense possibilities that might accrue from the use of two or more queens in one brood-nest are too great to be lightly dismissed.—ED.]

Some time ago I wrote of our experience along this line, saying we had been partly successful; but we wanted to test it still more thoroughly before giving it to the public. And I here wish to thank especially my friends E. E. Pressler, Dr. C. C. Miller, the editor of GLEANINGS, and some others who have given me much encouragement in trying to solve this, one of the hardest prob-

lems that I have ever tried to solve in bee-keeping. I certainly have good reason to feel grateful for the support that often comes from these men.

It is with much satisfaction that I can say that success has at last crowned our efforts. We can now safely introduce any number of queens to a colony that has a laying queen and is in a normal condition. Waiving all other preliminary remarks I will now describe this new method of introducing several laying queens without the use of queen-excluders to keep the queens separate.

First, prepare a small box, about five or six inches square, by boring a one-half-inch hole in one end. This you will for the present close, then remove a part of its two sides and cover with wire cloth so as to ventilate it well. This we call our introducing-box. Take this box and a common queen-cage to the colony to which you wish to introduce your choice queen, or several of them, in fact; remove its combs and put its queen, without any bees, into the queen-cage you have. While doing this shake about a pint of bees of the colony into the introducing-box. Close it and take all their combs from the colony. These can be placed on top of almost any hive until next day. The hive now made broodless, fill about half full of combs containing some honey *but no brood*. Leave the colony alone until about sundown, after which it will show distress over the loss of its queen and brood. Now take the box of bees to the honey-house, and at the same time the queen, but don't set them near each other. The bees in the little box will soon miss their queen and have lots of trouble.

After they have been confined about five hours prepare some warm thin honey, placing it in a dish so that, by laying the box on one side, the bees can easily reach the honey through the wire cloth, but can not daub themselves with it. Leave them this way until you are sure that every bee in the box is as full of honey as it can be, then give them a little shake and remove the cover from the hole in the end of the box (remember it is about five hours since they were confined in the box), and let run in any number of queens you wish, including their own mother. Now return them to their dish of honey so they can help themselves to all they can eat until about sundown; then take this introducing-box with its bees and queens to the hive from which you took the bees and their queen in the morning; set them to one side and feed the colony all you can induce it to eat. Remove some of its combs and pour in some of the honey you have been feeding to the bees in the box. Shake some of this honey out of its combs on these bees, so every one will soon be full. Now remove the cover of the introducing-box and set the box in the hive alongside the combs. Close up the top of the hive, and in the morning all the bees and queens will be clustered on the combs, and some of the queens will have commenced to lay. You can now give them the brood you took away from them the day before, or let them fill

their combs with eggs, which five queens will do in three or four days. That is all there is of it.

You now have the colony all together with their brood and their mother-queen, and as many other queens as you care to have in one colony. There has not been a queen balled or injured in any way.

We all know that many things along the line of introducing queens can be done with weak colonies during a good flow of nectar that can not be done with a strong colony in a honey-dearth; and for that reason we tried nearly all our experiments on the strongest colonies we had during a scant flow of nectar, and usually with colonies that had stung several queens during our experiments. There seems to have been almost no end to the number of queens we sacrificed in perfecting this undertaking—more so because we picked out the crossdest and worst-dispositioned bees we had, to experiment on. But as these queens died to save the rest, their lives were not lost in vain.

Now why is this method a success? First, because the bees have been a few hours without their queen and brood; next, a small part of their colony was confined in a box and filled with honey for several hours before the strange queens were given them; then those bees and these queens were shut up long enough together to become all of the same odor before they were given to the colony.

There are some things in this method that must not be overlooked. You first confine enough bees in the introducing-box to give to the queens you introduce the same scent as the colony is, to which you intend to put them; then the whole colony has been queenless and broodless for a few hours, and you have fed them in the box all they could hold before giving them these queens, and you have also fed the colony all they could eat before they received the queens and their bees. I find bees, like men, are better-natured when their stomachs are full.

If these instructions are carried out carefully you will never lose a queen in introducing, and the colony will be queenless less than twelve hours. Certainly this is a quicker and safer way than the candy method, which takes three or four days, and is often followed with a loss of ten per cent or more.

When we take queens from our nuclei or full colonies to introduce in this way we put several into a large cage, and have never had one stung by another. We are careful not to put any worker bees in with them. You may think that, to remove the plug from the hole in the box and let the bees leave it during the night would be better than to remove the top of the box; but don't do it. Some of the bees and queens will stay in the box until the next day; then when they come out and join the colony the bees are all empty of the honey you fed them, and they have some queens that joined them at first, and these additional queens might make trouble.

Be careful in following these instructions, and you will not lose one queen in a hundred; but it will not do to omit any part.

Now as to the advantages derived from this plurality of queens in a hive. First, we soon have a hive packed with brood; next, we have never had a colony with two or more laying queens prepare to swarm. Then it is the nicest way imaginable to supersede inferior queens. You can have the choice queen you wish to keep in the colony some time before removing the old queen, and both will be laying in harmony together. Sometimes we find a colony that has lost its queen, and its combs are so full of pollen that they appear almost worthless. When this is the case, just run in at the top of the hive, after a few puffs of smoke, two or three laying queens and you will be surprised to see how soon these combs will be filled with larvæ and capped brood; and shortly after its brood begins to hatch, these colonies will be the strongest in the apiary, and I can not see any reason why you could not winter a large number of queens that were reared late in the fall, and have them ready for your early increase; or for sale much earlier than they could possibly be reared in the spring. If surplus queens can be kept in full colonies during the winter season as safely as during the summer, then certainly another great forward step will have been taken in modern bee-keeping.

I expect to try wintering some surplus queens in full colonies this coming winter. In fact, I can already see many advantages that this new departure from the old methods will give us. We should naturally think that, with several queens in a colony, they would separate to different parts of the hive, and start a brood-nest alone by themselves; but, not so. They all seem to act together, commencing in the central part of the hive, and spread their eggs naturally toward the outside. A short time ago I opened a hive containing five queens. Four were on one comb, three on one side, and two in the act of laying. Again, I opened another hive containing four queens, the fourth day after they were introduced, and 7 of the 9 combs in the hive were filled with eggs as full as I ever saw combs filled.

I have explained this subject as plainly as I can, even repeating some parts; so please don't flood me with letters for further particulars, as I have no time to answer them at present.

Delanson, N. Y.

[The reader should not lose sight of the fact that Mr. Alexander is presenting a plan for introducing one queen to a colony, as well as a plurality of them, at one operation. While it may seem impossible, one should remember that his bees are a leather-colored *gentle* stock of Italians. Possibly it would not work with some strains, especially hybrids or bees of the Eastern persuasion.]

Without having had the opportunity to try this plan we would suppose that, after the honey-flow had stopped, and there was a strong disposition on the part of the bees to

rob, one or more of the queens would disappear, until only one was left. We base this supposition on an experience we have had where mother and daughter have lived in peace for months, and both doing duty. After the honey season one of them (the older one) will be gone, and this can hardly be explained on the ground that she died of old age; for why should she not die in the height of the season when she is laying at her best? It is significant that the one queen always "comes up missing" during the time there is a dearth of honey, when both are taking a vacation. Why is this?

With no thought of discrediting Mr. Alexander's work, we should like to have him tell us in his next how long he has been able to keep a bunch of queens like this in one hive, and whether there is a tendency for one or more of them to disappear after the honey-flow, and when bees are simply "horrid," to put it mildly.

We sincerely hope he can keep the whole thing going, year in and year out. The possibilities would be great. In the mean time, if any one else has any thing to offer we should like to hear from him.—ED.]

COMPARATIVE WEIGHTS OF HONEY AND COMB.

Shallow Brood-sections.

BY ERNEST C. BLODGETT.

1. When sections weigh 16 oz., including the wax, honey, and wood, what is the average weight of the honey?

2. How much honey is consumed in building comb to hold 100 pounds of honey? How many pounds of honey will a pound of new comb hold?

3. Suppose the brood of a colony is in shallow frames. If there were plenty of room above, would the colony be more apt to swarm if a queen-excluder were placed over the brood?

4. Is it ever best to kill old bees after the honey-flow?

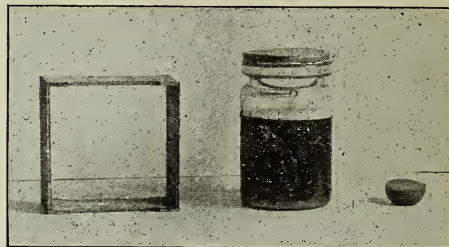
5. Will bees winter as well in a hive made of two shallow extracting-supers as in a regular Langstroth hive?

Putney, Vt.

[It is pretty hard to answer these questions definitely, as so much depends upon various conditions. For instance, the amount of wax in combs depends upon whether full sheets of foundation are used, and also the grade used. The answers, therefore, are only approximately correct.

1. A section that weighs 16 ounces, including the comb and the section, holds about 14 ounces of honey. We selected a section of a known weight, and pressed the honey out very carefully, saving both the honey and the wax. We found that there was about $\frac{1}{2}$ ounce of wax, a little over 14 ounces of honey, and one ounce of wood in the section. The illustration shows the empty section, the honey obtained, and the wax from the comb and cappings.

2. Estimates vary considerably as to the amount of honey consumed to produce one pound of wax; but as you will see in the A B C of Bee Culture it takes anywhere from 7 to 15 pounds to produce one pound of wax. About four pounds of wax in comb would be necessary to hold 100 pounds of honey. You will see, then, that a pound of new comb would hold about 25 pounds of honey.



HONEY PRESSED FROM A SECTION; RESULT—
OVER 14 OZ. HONEY, $\frac{1}{2}$ OZ. WAX,
1 OZ. OF WOOD.

3. The bees are not apt to swarm with plenty of room above the brood in shallow frames, even though a queen-excluding honey-board is placed above the brood. As a rule, however, a colony is a little more likely to swarm when the honey-board is used.

4. You would not need to bother about killing the oldest bees after the honey-flow, for these will soon die any way, and you would only weaken the colony by trying to kill some of the bees.

5. There is no reason why they shouldn't winter just as well and probably a little better because of the horizontal bee-spacethrough which the bees could pass from one comb to the other.—ED.]

THOUSANDS OF COLONIES FAILED TO RENEW THEIR QUEEN.

BY WM. McEVROY.

The past spring was the worst ever known in the Province of Ontario for "spring dwindling;" and from the reports I read in the bee-journals I believe the dwindling was almost as bad in Uncle Sam's domain. Nearly every one of these colonies which took so long to build up have their old queens still on hand. Now, this is a serious state of affairs, and one that requires prompt attention, because the most of these queens will be too old to be of much value for the next honey harvest. I would requeen all of these and every colony that has an old queen. I raise and buy queens, and requeen every year. The queens that I buy don't cost me any thing, because they more than pay for themselves in one year in the extra amount of honey.

I don't raise any queens for sale. About 90 per cent of the queens in use should be wiped out for better ones.

Woodburn, Ont., Aug. 5.

SHAKING BEES OFF COMBS.

Two Ways of Doing It.

BY DR. C. C. MILLER.

[Some months ago Dr. Miller in one of his Straws referred to a method of his for jarring bees off a comb by a sort of pendulum act. As we did not clearly understand the process we sent him a kodak and asked him to get a member of his family to snap it on him while he was doing the stunt. He did so, and the result is before you. The plan is a good one, and so also is the other one, the pounding-fist act for dislodging bees in the hive. These are all shown in the next edition of our A B C of Bee Culture, now in process of revision.

By the way, there is a lot of little "tricks of the trade" that are worth showing; and if others of our subscribers have discovered some new and useful "kinks" we shall be glad to have them tell us what they are; and, if of sufficient merit, we will send on one of our kodaks with instructions how to use. We pick up in this way a good many pictures, some of which have already been published.—ED.]

Although I seldom use the plan nowadays, I shall always hold Mr. G. M. Doolittle in grateful remembrance for giving us his plan of shaking bees off combs. Hold the frame supported at each end by the ends of the fingers, with the thumbs some distance above the top-bars. Suddenly drop hands and frame, striking hard upon the top-bars with the thumbs, and then catch the frame with the fingers. Do this rapidly two or more times in succession, and you will find the comb well rid of bees. I think Mr. Doolittle now strikes with the ball of the thumb instead of the thumb itself. Before learning that plan I had shaken bees off the comb by simply holding tight to each end of the top-bar all the time and shaking. It was harder work, and not nearly so effective, for it is the sudden jar of the Doolittle plan, and the



FIG. 1.—ONE WAY OF JARRING BEES OFF A COMB.



FIG. 2.—FIRST POSITION IN DR. MILLER'S WAY OF BUMPING A COMB ON THE GROUND TO SHAKE OFF THE BEES.

quick change, first jarring one way and then the other, that makes the bees lose their hold.

Either by this last way or by the Doolittle way it was difficult to shake bees down into a space between the combs in the hive. Unless quite a number of frames were out of the hive, I couldn't let the frame I was shaking go down between the frames without the danger of striking on one side or the other; and it was not safe to let the frame come down too close, even to the surface of the top-bars, for fear of striking.

So I fell into what might be called the fist plan, as shown in illustration, Fig. 1. You will see that the frame may be held down within two or three inches of the bottom-board with no danger of striking a frame at either side; and then when the left hand which holds the frame is pounded by the right fist the bees are jarred off in somewhat the same way as by the Doolittle plan. Unless you are on your guard in using this plan you may hold the frame rather loosely with the left hand, leaving a space between the end of the top-bar and the palm of the hand; then when you strike with the right fist the end of the top-bar will strike the palm of the hand; and, oh how it hurts! After being hurt in that way two or three times, I learned to hold firmly with the left hand, the palm pressing closely all the time against the wood.

I found, too, that, with a very light frame, I could do good work shaking bees off combs

in front of the hives; so after that I used the fist plan for shaking bees into the hive and also for shaking bees off light combs on to the ground, using the Doolittle plan with heavy frames when shaking bees on to the ground.

One day with a frame that had little more than foundation in it I struck the end of the top-bar on the ground, as I had no fear of breaking out such a light comb, and was surprised to see what clean work it made at taking off the bees. Gradually I tried it with a little heavier and a little heavier combs until I found that, by rightly handling the frames, I could thus shake bees off any combs, light or heavy. So, nowadays, I use the fist plan for shaking bees into the hive, and what Editor Root has been pleased to dub the pendulum plan for shaking off bees on the ground at the hive-entrance.

When striking a *very* light frame on the ground, there's no pendulum business about it. But if you take a heavy one, raise it, and with a straight-down motion let it strike the ground, it will severely rack the comb, if, indeed, it does not throw the end-bars out of being perpendicular to the top-bars. But if the force comes directly against the top-bar, or even in a diagonal direction, the comb will easily stand the shock.

So you will first swing the frame back till it is in the position shown in Fig. 2, and then swing it in the other direction till it is as shown in Fig. 3; then as it swings back again let the end of the top-bar strike the



FIG. 4.—LAST POSITION; BEES ALL ON THE GROUND.



FIG. 3.—SECOND POSITION.

ground as at Fig. 4. You will see in Fig. 4 that the diagonally opposite corner is nearly vertically above the corner that strikes the ground. If the frame came straight down in that way it would stand quite a shock. But the pendulum motion—the swing back—makes it somewhat as if the frame struck the ground directly on the top-bar, which fact you will see illustrated by the position of the bees on the ground. Compare the ground in Fig. 4 with that in the other numbers, and see where the bees are in Fig. 4. If they fell from the comb vertically, the bulk of the bees would be right where the end of the top-bar rests on the ground. But you will note that they are back of that, thrown there by the backward motion of the comb.

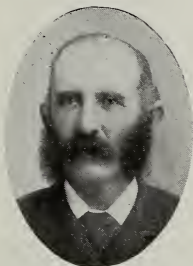
In a Straw I said I had never injured a comb by the pendulum plan. Within perhaps two days after that I cracked two combs. They were freshly built combs, and very heavy with honey. So with such combs one must not strike the ground too hard. Better, perhaps, use the Doolittle plan or the brush.

ONTARIO FOUL-BROOD INSPECTORS.

BY R. F. HOLTERMANN.

The engravings show various foul-brood inspectors for Ontario, mentioned on page 889 of the July 1st issue. All of them have been more or less before the bee-keeping

public, and require no further introduction by me. There has been a great deal of active work done by the inspectors, and much more foul-brood found than was expected by any one. However, Ontario bee-keepers expect to have a very much improved condition by autumn. Ontario is the only province in the Dominion having a foul-brood act. It is time for a change in this respect.



WILLIAM MCEVOY,
WOODLAWN.



J. ALPAUGH, DOB-
INTON.



H. G. SIBBALLS,
CLAUDE.



JAMES ARMSTRONG,
CHEAPSIDE.



M. B. HOLMES,
ATHENS.



J. L. BYER,
MOUNT JOY.

This is all free government inspection; and as the field to be covered is large, the bee-keeper desiring inspection of his own or his neighbor's apiary must send the request to the inspector in charge, or to P. W. Hodgetts, of the Department of Agriculture, Parliament Buildings, Toronto.

Brantford, Ont.

QUEEN-CELLS IN UPPER STORIES OVER EXCLUDERS.

Hundreds of Large Cells Produced, and
None Torn Down by the Bees; Un-
der-sized Cells Likely to
be Destroyed.

BY BENJ. A. FORD.

When I read that Jay's article in the April 15th issue I was very much puzzled to learn how his bees destroy queen-cells. I must say I do not understand why the bees should tear them down. I have been rearing queens for nearly 20 years, and always put cells anywhere I choose so long as the queen can not get at them, and I very seldom have any torn down by the bees. Last August I had about 100 cells on several different frames in an upper story above the excluder, with the laying queen below. I kept this colony for that purpose; and as fast as a batch of cells were finished they were removed from the colony that had built them and placed in the upper story of this hive, to be cared for until the day before time for them to hatch, or when they had been capped for seven days: then they are cut out or separated, and given to nuclei. Many are given as soon as the laying queen is removed, and I seldom have any torn down or the queen killed. In nearly all cases the young queen will be found laying ten days after the old queen was removed if the nuclei have been properly stimulated by feeding, and the weather suitable for the young queens to take flight.

My experience has been that every inferior or poorly fed cell will be destroyed unless the bees have been queenless for a day or two; but a large well-developed cell that will produce a queen equal to the best natural-reared queens will always be accepted by the bees in any colony if it is nearly ready to hatch.

INTRODUCING NEWLY HATCHED QUEENS WITHOUT REMOVING THE OLD ONES.

Some time last year I read something in some paper about superseding old queens by letting a newly hatched queen run down between the frames without removing the old queen. I have tried that with good success, and think that, where the old queen is nearly worthless, it will work all right, and the same thing can be done with a cell that is nearly ready to hatch or where the young queen is just beginning to gnaw out; but I would advise putting the cell between the side of the hive and the first frame.

QUEENS FROM UPPER STORIES FERTILIZED.

I have had many queens fertilized from upper stories above the excluder, and it works to perfection. All that is necessary is to have an entrance for each story. I have a neighbor bee-keeper who had four queens in four bodies, with excluders between, last summer; and as fast as his colony became strong enough he would add another story and give them a cell, and in due time the queen would be found laying.

Whitman, Mass.

PROTECTION OF COMBS AND WAX FROM THE WAX-WORM.

BY BURTON N. GATES.

There are frequently times when one wishes to put away in the summer either some old combs or some burr-combs and clippings for the extractor, and to feel sure that, when he goes to look for them, he will find other than a mass of web and cocoons. The question frequently arises, "What is the best way to protect such from the ravages of the moth?"

A similar problem confronted the writer last June when I was called away on short notice to be absent for ten weeks. I therefore decided to fumigate the combs and to seal them so tight that no caterpillar could enter.

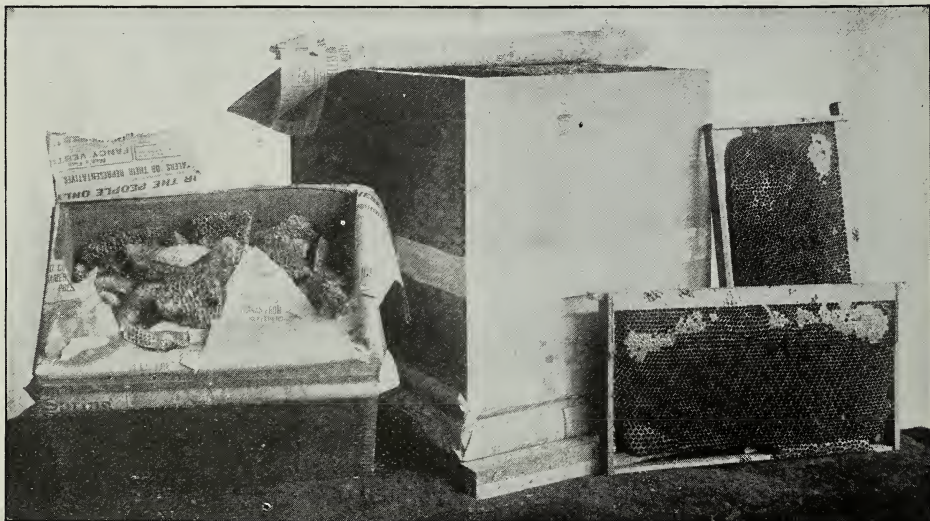
I took two hive-bodies, one above the other, and toenailed them together. Over the box thus formed I folded several thicknesses of

The fumes spread in the atmosphere very rapidly; and if they come in contact with fire they explode violently. Never have any form of fire—not even a smouldering smoker—near where you are using this substance.

The smaller box, in which there is a lot of scrap comb, was similarly prepared, save that it was not necessary to cover the bottom with paper.

Now, I knew these combs to contain some larval moths, and, doubtless, eggs. When I opened the cases in the early winter I was glad to find my measures had been totally successful. The results were as you see them in the picture. The bisulphide had checked all life. I left some combs in a tightly closed hive, unfumigated, as a check. The results were very obvious—they were a total loss.

Doubtless comb thus prepared and sealed could be left year in and out; for so long as the case remained tight, the paper intact, and the boards unchecked, no caterpillar



GATES' METHOD OF PRESERVING COMBS AND WAX FROM THE WAX-WORMS.

Bisulphide of carbon is placed above the combs, and the box is quickly covered. Combs so arranged may be kept indefinitely.

newspaper, brought it up over the sides of the box, and cleated it securely with strips of wood, as shown in the picture. The box was then set upon a bottom-board for convenience in handling.

Several thicknesses of newspaper were similarly fitted over the top of the box, but not secured until I had filled the hive-bodies with frames upon which a few teaspoonfuls of carbon bisulphide were poured. The paper top was then quickly fastened down with cleats, as was the bottom paper, a hive-cover put on top of all, in order to insure against puncturing the paper, and all was left until fall.

A word of caution must here be introduced against having any fire or flame anywhere near where carbon bisulphide is liberated.

could gain entrance. I believe the method to be positive, and I know it is simple and quick.

Worcester, Mass.

[While the plan here given is good, yet it answers almost as well with far less work to space combs two inches apart on racks in a tight room and then give it a fumigation. In most cases it will not be necessary even to fumigate if the combs are taken directly from the hives and spaced two inches apart in the aforesaid room. If one comb should be infested with worms the two-inch spacing would prevent the webs from spreading.]

Another good way is to set the combs over a hive where Italian bees or common hybrids can get at them. Or, again, if put in hives

outdoors into which spiders can and do enter, they will be protected. But all scraps of combs should be thrown into a solar wax-extractor as fast as they accumulate, and melted up.

It is not wise to keep such pieces lying around. The sooner they are converted into wax in the cake form the better, and a small solar extractor that any one can make out of a shallow box, a tin pan, and a sheet of glass will do the work.—ED.]

A HOME-MADE SOLAR WAX-EXTRACTOR.

“Melt the Old Wax Combs; the Wax Cake will Take Care of Itself.”

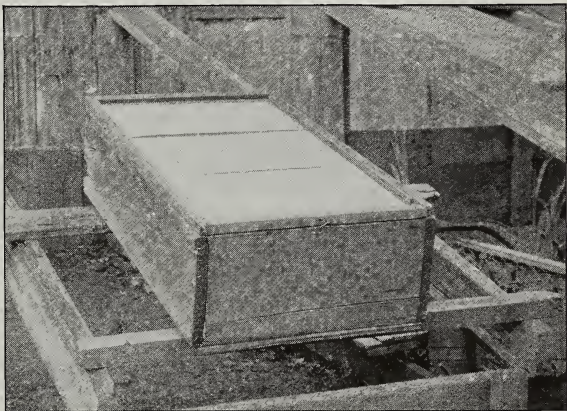
BY W. A. PRYAL.

What a handy thing a solar wax-extractor is in an apiary! No matter what the size of the apiary may be, one of these helps should be at hand to convert into wax the comb that might otherwise be allowed to remain about the yard and be the nursery for innumerable broods of the wax-moth and its destroying progeny of worms. Any pieces of comb that are not of sufficient value to use in comb-grafting, and all cappings and scrapings from combs and hives, should be thrown at once into the wax-extractor so that the heat of the sun may destroy any eggs or larvæ of the moth that may be in the accumulation. Then, besides, the wax is worth saving. If Poor Richard had been up in bee-lore and the care of the bee he would have written an adage something like this, in all probability: “Melt the old wax combs; the wax cake will take care of itself.” Any way, his saw of “Take care of the pence, and the pounds will take care of themselves,” comes pretty near the mark; for every little piece of comb may be said to be a penny’s worth, and, if saved, is really a penny earned.

Few have any idea how easy it is to have one of these extractors. They need not be costly, neither need they be made of choice material. Any kind of wood will do, or they may be made of metal. The large one here shown was made of a piece of one-inch rough redwood board for the sides and ends. The bottom is of half-inch stuff so as to make it as light as possible. The box was made to fit the glass sash, which in turn was made to accommodate three good-sized panes of glass, butted in without cross-ribs in the sash, which would rather obstruct the sun’s rays. Another reason for having three lights of glass was that, in case of an accident, the probabilities are that not all the glass would be broken at once. A large piece of sheet-iron was set

inside with the concavity nearest the bottom, and upon which wire netting with meshes about the size usually found in window-screens was placed in such a position as to prevent the melting mass from slipping to the bottom, which was reserved for the clear wax that filtered through the screen. The cost of this extractor was nominal—in fact, nothing, if I figure that the inch board was picked up on the place; that the iron came from a discarded chimney, that was neither rusty or sooty; that the bottom was of some pieces of pine boxes, and the glass was taken from the hot-bed sash, the putty coming loose and thereby allowing the glass to be easily removed. Provision was made that the glass could be returned to the sash at any time when there needed. This was done by tacking narrow strips of wood to hold the glass in place, as is so often done nowadays, instead of putty, which is a nuisance when reglazing has to be done.

To any one who is not handy with tools, and who can not contrive to rig up “something out of nothing,” I would advise him



PRYAL’S SOLAR WAX-EXTRACTOR.

to purchase one of the solar wax-extractors made by a manufacturer of apiarian supplies. Where there is much comb and cappings in an apiary, I would recommend a wax-press in addition to the solar extractor. Get the old comb into the solar extractor as soon as possible, and let old Sol roast the life out of the moth-eggs and moth-larvæ that may have gotten into it.

Oakland, Cal.

[A small solar wax-extractor will save many a piece of burr-comb that might otherwise be lost. It should be located in the center of the yard, and, instead of letting these little pieces of wax accumulate, becoming a breeding-place for the moth-miller, these scraps of wax should be thrown in at once and immediately rendered, or as soon as the sun shines.

The solar wax-extractor has its place; but it is not adapted for handling large quanti-

ties of old comb. For these a good press should be used in connection with hot water.—ED.]

A THREE-YEAR-OLD BEE-KEEPER.

I send to GLEANINGS the photo of the youngest queen-hunter (perhaps) in the United States—little Harold Shultz. He was three years old the 25th of February last. He goes in front of his grandpa, the writer, and removes the block from the Alexander feeder. Who can beat this?

Huntington, W. Va. J. E. STARKS.

of it last year to the farmers in the vicinity of our north yard, believing that the plan would be productive of good results. We pursued the same policy of free seed given this season in the region of the other yards, including the one at home. Of course this last seed-giving has not been able thus far to show any results except to show a thrifty growth of young plants; but at the north yard, where the seed was sown a year ago, we have found that the flow of nectar was materially increased. When the other yards were almost on the verge of starvation the north yard was abundantly supplied with



HAROLD SHULTZ, THREE YEARS OLD, LOOKING FOR A QUEEN.

ARTIFICIAL PASTURAGE.

Giving Away Alsike Seed to the Farmers within a Mile of a Bee-yard; How a Poor Bee-range may be Improved.

BY E. R. ROOT.

We have already referred to the fact that we have been giving away alsike seed within a mile of our out-apiaries. The result was we disposed of a considerable quantity

honey from the alsike which was growing in the tall timothy, and the peavine clovers, for the farmers seem to prefer to mix the seed, averring that they get a larger and better crop by mixing alsike with timothy or with peavine clover. When alsike is sown by itself it has, they say, a comparatively small growth; but when sown with some other hay of taller growth the stalks, in the effort to get toward the sunshine, stretch out.

In a recent trip through Southern Michigan we saw that the farmers were universal-

ly using alsike in their timothy. In view of the fact that Michigan has been a large supplier of clover honey within the last years or so it would rather seem as if alsike were one of the prominent if not the principal source of this honey. From considerable observation we are of the opinion that, if a bee-keeper has a poor locality, he can greatly increase the honey-yield by giving out for the first two years free alsike seed to the farmers. When it once gets a foothold in the soil it will stay year after year.

One of our neighboring farmers told us yesterday that some seed that A. I. Root had furnished him twenty years ago was still showing a very heavy sprinkling of alsike over his pasture and meadow lots, although he had not sown any seed during all that time, for it self-sows, like the old white clover, to a great extent, for necessarily some of the earlier blossoms go to seed and the seed rattles out at the same time the hay is cut. The seed that falls goes into the ground, and, no matter what cultivation may take place

artificial pasturage that a bee-keeper may go into. He benefits the farmer by giving him a better hay, more and better milk, and himself more and better honey. A word to the wise will be sufficient. He who makes two blades of grass (or clover) grow where one grew before is a benefactor.

BEE-KEEPING IN CONNECTION WITH FARMING.

Good Returns for the Amount of Capital and Labor Invested.

BY JEROME BARNELL.

This photograph of my apiary was taken just as the trees began to leave out in the spring. The hives are in their winter dress on their summer stands. Late in the fall I opened the hives and placed two corn-cobs across the brood-frames about four inches apart, then spread over all a thin piece of muslin cloth, put on a super, fill it with dry



JEROME BARNELL'S APIARY IN THE SPRING; WINTER PACKING STILL ON.

afterward, it will spring up at the first favorable opportunity.

One other farmer told us he had sown considerable alsike with his timothy; that, during the process of rotation of crops, it came about that he did not use the land for the growing of hay for a number of years, but grew such crops as corn, that kept down any growth of hay or clover of any sort. Ten years after the first sowing he sowed clear timothy, and was surprised to see a heavy sprinkling of alsike all through the hay.

There are hundreds of other cases that might be produced to show that alsike is a stayer; that any bee-keeper who has a field that does not yield him honey as it should will do well to get the farmers to take hold of the alsike; for once they come to know of its value they will continue to use it, especially if the bee-keeper will furnish the seed at half price within a mile or a mile and a half of any one of his yards.

This is one of the most profitable fields of

chaff or leaves from the trees that have fallen off at the time and are very dry, and that is the winter packing.

The cobs placed on the frames make a space over the brood-nest for the bees to pass when they like.

I work for comb honey only, and never take any honey from the brood-chamber; and I find that every good colony so packed for the winter commenced strong in the spring. Some that have cast swarms late in the season, and have failed to rear a new queen, will, of course, die before spring. I put the first swarms that issue the next season into all such hives.

I have been keeping bees for more than 25 years on this farm, commencing with one colony of pure Italians. From that one colony I have sold and given away many swarms, and now have 55 colonies in fine condition from that one queen. I have never tried to change queens. My own were always fine. I have made my apiary pay me

from \$100 to \$250 per annum, and my bees are still fine three-band Italians. I have not given my bees half the attention they should have had, yet they have paid me good interest for time and money invested from start to present time.

The hives are of the eight-frame Dove-tailed pattern. When I got them in the flat I nailed them and gave them two coats of paint, some of them lead-colored, and some of them red, and they have never been painted from that time to this. Most of them are in good condition to-day.

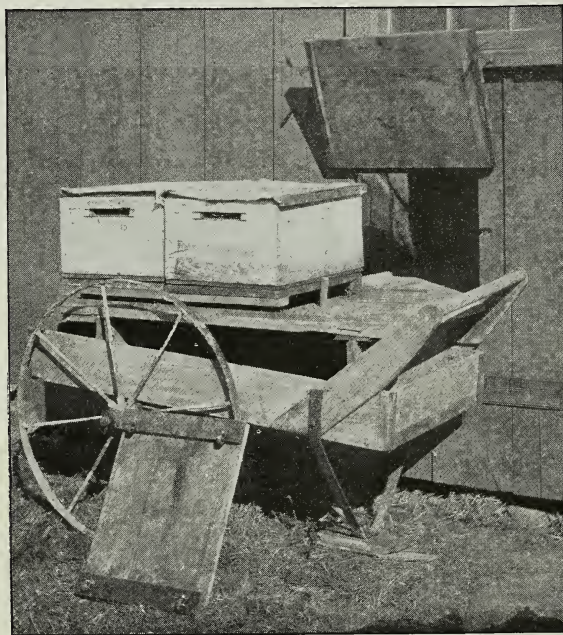
The covers are made of single pieces of board with end cleats. These I painted on both sides, and can reverse them. They are the best covers ever made, for, although very old, and in constant use, being left out of doors summer and winter, they are good to-day.

Wahoo, Neb., March 14.

A COMB-CARRYING CART.

BY T. P. ANDREWS.

Mr. Editor:—I send you a photo of my cart and fixtures for conveying combs of honey from hives to the table in the extracting-room. The raised removable plat-



ANDREWS' COMB-CARRYING CART.

form in the cart on which the two boxes of combs stand has a shelf or bridge projecting on the further side between the cart-wheel and handle, making connection with a low table in the extracting-room, so that the boxes of combs standing on boards with cas-

ters under the corners are easily pushed through the opening on to the table near the uncapping-can. This table, as well as a part of the cart-platform, has a raised edge to keep the casters from running off. A pin, seen in front of the comb-boxes, holds them securely on the cart.

The table-top should be large enough to allow the two boxes of empty combs to be run out on to the cart after receiving the full ones. A light sliding door on the inside of the room is easily handled from either side. The hinged door seen is fastened on the inside.

Farina, Ill.

TWO OR MORE LAYING QUEENS IN ONE HIVE.

The Plan Not a Success in the Hands of the Average Bee-keeper.

BY J. E. CHAMBERS.

I have read with much interest the article of Mr. Alexander, on the practicability of keeping a plurality of queens in one hive, page 473 in the April 1st issue, also the letter from Mr. Pressler, page 617, in the May 1st issue, and J. A. Green's note on the following page.

While I do not wish to say that Mr. Alexander is entirely wrong about this matter, I will go to the extent of saying that, with most bee-keepers, it would be impractical if not impossible; for, just as Mr. Green says, some colonies will unite without the least trouble, while others will fight to the end, notwithstanding the employment of heroic means to subdue them. Like Mr. Green I am not the least in doubt about laying queens killing each other, though they do not always do so. I know that it is entirely practical to use two queens in each hive in order to get colonies strong enough for a given honey-flow, when otherwise it would not be possible to bring them up to the desired strength; but I have so far found it impossible to do so without the use of means to keep them separate. If there is any thing of which I am certain, it is this: That a plurality of queens in any hive except under certain well-known conditions is not in accord with the known instinct of bees; and as I do not consider that the bee is possessed of

any intelligent capacity for improvement, I do not feel very sure that they will ever be brought to act in accord with man's desires when their own instinct goes counter to such desires. I am aware of the fact that, under certain conditions, bees accept a plurality of

queens; but even under these very unusual conditions the vast majority of colonies refuse to have more than one queen; and if it were at all natural for them to have all of these queens, I am positive that, during the many years bees have been handled by intelligent men, there would have been many colonies found having a plurality of queens, thus indicating that such was a primary instinct of bee nature. No one need come forward telling me that such has been the case when queens were failing, for I am perfectly aware of the fact; but I am speaking of perfectly normal conditions.

I have been using two queens to build colonies up faster than was possible with one, especially when a flow was near at hand and the time not sufficiently long for the best success under the old practice; but as I said before, I have had no success in the way Mr. Alexander mentions. Some colonies operated in this way last year gave 180 lbs. of honey during fourteen days of sumac bloom, while the ones not handled in this way gave an average of only 50 lbs. I am not trying to take away any of the credit that belongs to Mr. Alexander; but, while a very great bee-keeper, he is fallible just as common men, and it is no more a mistake for him to be mistaken than for any other man. All but fools make mistakes; and while entirely successful in his own locality and practice, I think Mr. Alexander is away off for most of us, and I am basing my conclusions on several years' experiments on or along this very line. I am no novice in such experiments, I can assure you.

Vigo, Texas.

[Mr. Chambers finds it "entirely practicable to use two queens in each hive in order to get colonies strong enough for a given honey-flow when otherwise it would not be possible to bring them up to the desired strength; but so far I have found it impossible to do so *without the use of means to keep them separate*"—italics ours. Keep what separate—queens or bees? "Means to keep them separate." Does the word "means" refer to perforated zinc or wire cloth? Even if we have to use perforated zinc between the two queens, both in one colony, if we can thereby get colonies stronger for the harvest we have gained much. What we desire to know is, can two queens be used under *some* conditions? and, if so, what are those conditions? See article by Mr. Alexander in this issue.—ED.]

A SEASON'S WORK WITH SECTIONAL HIVES.

Swarm Control and Comb-honey Production; Disposing of the Honey Crop.

BY J. E. HAND.

Having secured a nice crop of fancy honey, the next thing to be considered is how to turn it into cash to the best advantage. This is the business end of honey-production, and our success will depend in a great measure

upon our ability to dispose of our product to good advantage.

WHEN TO SELL HONEY.

It is said that the best time to set a hen is when she wants to sit; so the time to sell honey is just as soon as you have some to sell. Many bee-keepers make a mistake in holding their honey too long. As a rule it is far better for the honey-producer of the Middle and Eastern States to market their honey early before the heavy carload shipments of Western honey arrive to glut the Eastern markets. After the close of the berry season there is always a good demand for comb honey at a good price; and this is the time that we rush our honey to market.

HOW SHALL WE DISPOSE OF OUR CROP?

There are several ways of disposing of the honey crop. One way is to send it to a reliable commission house to be sold on commission, and this is, perhaps, the easiest way of all, providing you are in no hurry for your money, for some of the commission houses have a habit of holding on to the money as long as possible, and very often the returns from such sales are far from satisfactory to the bee-keeper.

Another way of disposing of the honey crop is to develop the home market by placing our product in the groceries in near-by towns and villages instead of sending it to the cities to come into competition with the carload shipments of Western honey.

We strongly favor selling outright instead of consigning our hard-earned honey crop to the tender mercies of the commission man; but whether or not it will pay us to develop the home market will depend in a great measure upon how much our time is worth. If we have to neglect our business to go out and drum up a trade or build up a market, and in so doing spend five dollars' worth of time for every ten or fifteen dollars' worth of honey we sell, we should prefer sending our product to a market that is already developed, and let the other fellow, whose time is not so fully taken up, have the glory of developing the home market.

We have tried this idea of developing the home market, and it has been a losing game with us; hence our fancy honey usually goes to the cities, and is sold outright to a responsible firm that handles large quantities of honey. We do not come into competition with the heavy shipments of Western honey, for the reason that, by selling early, before the Western honey arrives, and at a time when there is usually a lively demand for a fancy article, we have found, as a rule, that we get better prices for our honey than by selling later in the season. We have found some difficulty in placing honey as late in the season as December, and this past season our honey was cleaned up in August.

HOW CAN WE REACH THE LARGE BUYERS OF HONEY?

There are different ways of reaching the large buyers in the cities. One way is by personal correspondence through the mails,

and another way is to take a sample case of fancy honey and go on the road as a salesman. We have had good success in making sales by both these methods. Honey is not a staple article, and we learned years ago that a honey-producer, in order to be successful, must necessarily be a good salesman, as it is just as essential to know how to dispose of your product to good advantage as it is to know how to produce it.

When we receive an inquiry through the mails from a prospective purchaser we make it our business to answer such by return mail, fully describing our honey, telling just how it is graded and in what kind of cases it is packed, and just how it is crated for shipment, so that, when he gets our answer to his inquiry, he knows just what he is going to get if he buys our honey. As a rule these large buyers will drive a close bargain. We have found, however, that they are usually willing to pay a good price for a really fancy article; and if they insist that our price is too high we usually beg the privilege of sending them a sample crate, and this usually fixes them; and the next season very early we usually receive a letter from them something like the following: "How much honey have you got like that we bought of you last year, and what is your price?"

Not long ago we wanted to buy some fancy comb honey to supply one of our old customers after our crop was all sold, so we wrote to a bee-keeper who had advertised honey for sale, asking him how his honey was graded and packed, and the price. His reply was that he could grade and pack it almost any way to suit us. Well, that was all right so far as it went; but we knew no more about his honey after we received his answer to our inquiry than we did before; and as we did not want honey that was graded "almost any way" we did not buy.

FUMIGATING COMB HONEY.

Having found a cash buyer for our honey, the next thing to do is to grade and pack it for shipment. However, before our honey is removed from the supers it must be thoroughly fumigated with sulphur; for, although we do not expect to hold it ourselves, some one else may, and we can't afford to lose a good customer by allowing our honey to become infested with wax-worms. Not long ago, while in Cleveland we noticed a commission man opening a consignment of comb honey from a bee-keeper in an adjoining State; and if that bee-keeper could have been at that end of the route he would have had an object-lesson of how *not* to prepare honey for shipment, for the honey was not only not properly graded and packed, but the evidence of wax-worms was plainly visible on the cappings to many of the sections; and we promised ourselves then and there that none of our honey should leave our apiary without being thoroughly fumigated.

When our honey is removed from the hives, and tiered up in the honey-room as high as we can reach, with an inch-square strip between the supers at each end, we are ready

to fumigate it. Perhaps the best way to fumigate honey is by means of sulphur fumigating candles such as poultrymen use to disinfect their poultry-houses. All we have to do is to light the candles and close the door, and the job is soon done.

As it has been our chief aim to produce a strictly fancy article of comb honey, so now having produced it we should endeavor to grade it so that it will be uniform; and perhaps the only way we can do this is to have a rule for each grade, and perhaps the grading-rules as adopted by the North American Beekeepers' Association at its Washington meeting are as nearly correct as it is possible to get them. If any thing, we would place the standard of the fancy grade higher; for the higher the grade the higher price it will bring, and there is no surer way of lowering the price of honey than by lowering the standard of our grading-rules. By our improved methods of filling the sections with foundation, together with our system of finishing our sections over a feeder, we get a more uniform and perfect filling of the sections than it is possible to get in any other way. Indeed, all our sections are perfectly filled and practically free from pop-holes in the corners, and our No. 2 sections are as perfectly filled as our fancy ones, the only difference being that the No. 2 are slightly travel-stained, and some of the cells are not capped, hence we make only two grades, which we call "fancy" and "No. 2." As the outside of our sections is protected by wide frames we have only to scrape the edges of our sections, for the tops are as clean and white as when we put them into the supers. We can't understand why bee-keepers will continue to use the T super and the section-holder, thus exposing the tops of the sections for the bees to travel over and daub with propolis. Such sections can't be made white again, and always look soiled and dirty in spite of the scraping and sandpapering.

Having our honey graded, and making the fancy grade strictly fancy in every respect, we will inclose each section in a neat paper carton, after which the sections are weighed before they are put into the case, as is also the case, and the weight of the honey and of the case is plainly marked on the top of each case.

Having our honey graded and cased we will next turn our attention to getting it to its destination in as good condition as possible, for a pleased customer is our best advertisement. For shipping comb honey we use a crate holding eight 24-lb. cases, made deep enough to allow of six inches of straw in the bottom of the crate when packed down. We use a follower on top of the straw; and by getting on the follower with our feet we press the straw down solid far enough so that the top cases will be about an inch above the top of the crate when first put in. The idea of having a follower for the cases to rest on is a good one, and prevents the straw from bulging up the bottom of the lower cases and breaking the honey out of the sections. Each case should be wrapped with paper before

it is put into the crate to protect the outside against dust and coal smoke.

If some of the bee-keepers could see their honey when it arrives at its destination they would be more careful in preparing it for shipment.

Having our honey crated as above described, the next thing is to put on the top of the crate our "caution label," which is a large colored label having on it the picture of a hand with the words, "Comb honey, handle with extra care, and load with finger pointing to end of car." The label is put on so that the bumping of the car will bring the concussion against the wood of the section instead of sidewise of the combs.

Having our honey put up in this condition it will, barring accidents, arrive at its destination in perfect condition, and we shall have a pleased customer and one who will stay with us year after year. We have customers on our list that have been with us for the past ten years. The way to hold your customers is to stand back of your goods with a reputation for square and honest grading; and in case of any misunderstanding, show a disposition to come more than half way. While we aim to have every section of our fancy grade come under our direct observation, yet sometimes, in employing help to grade our honey, a few sections may get into the fancy grade that really do not belong there; and whenever we receive complaint of off-grade honey in our fancy grade we ask our customer to present his bill, and kindly thank him for calling our attention to the matter, assuring him that we are as anxious to make good any mistake on our part as he can possibly be to have us do so. We have had just one case of this kind in ten years, and it is needless for us to say that that party is still a valued customer. Our motto is, when you get a good customer stick to him. In shipping honey we always guarantee safe arrival of our honey by freight, and we have never yet been asked to make good any loss from breakage, nor have we ever received notice of any breakage or leakage of our honey since we adopted the above method of packing. The report has always been, "Honey arrived in perfect condition." Dealers like to buy from shippers who are not afraid to guarantee safe delivery of their honey, since there is a great risk in shipping comb honey unless properly packed and crated.

To be continued.

IF I WERE TO START ANEW, WHAT STYLE OF FRAME, SUPERS, AND OTHER APPLIANCES WOULD I ADOPT?

The Simplest Arrangements the Best; Avoid
Complicated Fixtures; the Value of Pro-
tection for Comb-honey Supers.

BY WM. M. WHITNEY.

[Our correspondent explained in a letter that he had been unable to find time to write this article sooner—hence the delay.—ED.]

This question, I suppose, is intended to include hives as well. If this supposition is correct it greatly extends the scope of the inquiry and intensifies the interest of bee-keepers in the investigation of the subject. When we stop to reflect on what this question includes, taken in its broadest sense, the difference in climatic conditions, whether indoor or outdoor wintering is practiced, whether the apiary is run for extracted or for comb honey or both, etc., we are confronted with a problem, which, to solve intelligently, requires an experience possessed by few, if any, in all this broad land.

My bee-keeping, while having been in different localities between the 41st and 43d parallels, has been under much the same climatic conditions; hence, so far as personal experience goes, it has been substantially the same from the beginning, and has been confined to outdoor wintering. Wanting something to occupy my mind and take my attention while convalescing from sickness about eleven years ago I got a couple of colonies of bees, subscribed for GLEANINGS and the *American Bee Journal*; got the A B C, and Langstroth by Dadant, to which authors I have added from time to time, and commenced studying the bee. It was my purpose to do whatever I had in hand to do, as well as I could under existing circumstances. While following general directions given in books and journals, like many others I have tried to do some experimenting on my own account.

As a general proposition, were I to commence bee-keeping anew, what kind of hive would I use? One might be inclined to say, as Dr. Miller sometimes does when an unpleasant question is presented, "Yes," and dismiss the subject. "Many men of many minds;" and many hives of many kinds. You pay your money, take your choice. A colony of bees will do just as good work in a log gum as in the best hive on the market if they have room enough; but, not being easily manipulated, or, in other words, it being impossible to produce desirable results with primitive appliances, all sorts of devices—good, bad, and indifferent—have been offered to the bee-keeping public.

From my experience, observation, and from what I have read, I have a choice among the hives offered to the public. It is my belief that, on general principles, and for all ordinary work, the eight to ten frame Langstroth hive-body, according to locality, and whether comb honey or extracted is produced, is the best hive on the market. It meets

APROPÓS of derricks for lifting and weighing hives, the rather celebrated Kidder, in his book published in 1868, shows an arrangement almost precisely similar to Mr. Hand's device. He recommended it for weighing hives. Similar devices were used before Kidder's time. The July number of *L'Apiculteur* (Paris) contains a tripod device very similar to Mr. Hand's, but arranged with a very ingenious steelyard for purposes of weighing.

the needs of the ordinary farmer—yes, and the specialist, working for honey only, in my judgment, better than any other.

I have had some experience with single-walled hives; but as my practice has been confined to outdoor wintering I have adopted a double-walled hive to the top of the first story, continuing the outside case to make a two-story hive of it. I have made a compromise between the eight and ten frame, thus making a nine-frame hive—to be singular, perhaps, and please nobody. This, however, it seems to me, is a desirable size of body for most localities, especially for comb-honey production. This hive admits of putting three $4\frac{1}{2}$ -section cases under the cover at a time. It also gives a two-inch space between the section-case and the outside, which I regard as very important in the production of comb honey, as the outside sections are protected from the chilly winds that are so common in most northern localities at night during the early summer, and some seasons all summer. This protection enables the bees to work the outside section just as freely as the inside ones, thus bringing the work of capping the sections to a close at the same time, leaving fewer unfinished sections, and less travel-stained, which must be the case where left on the hive for completion in case the work is not carried on simultaneously. Also, this method enables the bee-keeper to produce straight comb without separators.

Those who think that this idea of protection of outside sections a mere notion, and adhere to the single-walled hive for comb honey, I would request to take a look at the cases some chilly night. I feel sure they will find the outside sections vacated, and that they will not be occupied till late in the forenoon of the next day. Thus we see that the work is unevenly done, and the delay in finishing the outside causes the inside sections to be injured by travel-stains; but if taken off to save this injury it leaves a lot of imperfect sections to be rearranged and put back, which never are finished as perfectly as if left on the hive. It seems to me that the idea of protection to outside sections as here indicated can not be too strongly emphasized.

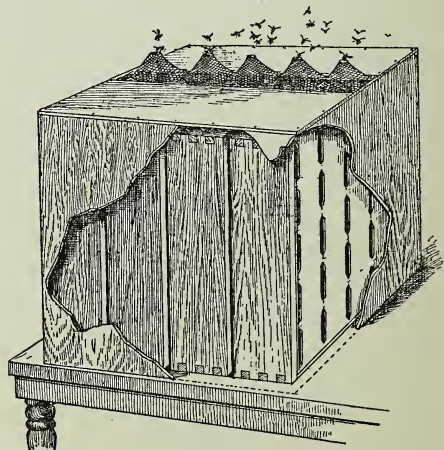
Again, the double-walled hive may be placed in the yard without shading, which is hardly the thing to do with a single-board hive. The double-walled hive breeds up more rapidly in the spring; keeps a more even temperature during the season; is not so likely to suffer from chilled brood nor from robbers, as is the single-walled hive. This hive may be used with the brood-chamber in the second story, if desired, the same as any other. To conclude my talk about the hive, as I have said before, section honey can be produced with this style of hive without separators, which can not be done in a single-board hive. It is true, however, that more care is necessary than with separators. There must be a strong colony, a plumb hive, good honey-flow, and no swarming allowed. I have secured a fair amount of surplus, in seasons when my neighbors with single-board

hives got none. I attribute the difference to the hive used. I only wish that I'd made my hives with loose bottoms to be fastened with hooks. I think I'd like them better.

As to frames, I know of nothing better than the long-end top-bar Hoffman frame. I cut the corners of the end that projects over the rabbet, so as to make a sharp perpendicular edge, which meets the upward projection of the rabbet, and spaces the frame endwise, thus obviating the necessity of using the staples for spacing. You will see, by trying this method, that there will be no sticking the frames with propolis, as some complain of the bees doing when this frame is used. In fact, there is nothing like the trouble with such an arrangement as I have had with the short-end top-bar. Then, again, the short end is liable to drop off the rabbet at one end or the other, even in the machine-made hive.

As to section-cases, I have used the "T," also the section-holder cases, and like them both. I think I'll let Dr. Miller and the editor of GLEANINGS fight this matter out to their hearts' content. As I feel now, I don't care which whips.

In regard to sections, I have had experience only with beeway sections; but from the knowledge I have from reading and experience I am partial to the seven-to-the-foot two-beeway. I have used the $4\frac{1}{2}$ *with*, also *without*, separators. I have used seven-to-the-foot $5\frac{1}{2} \times 3\frac{1}{2}$ in section-holder cases that came with bees purchased when I came here, and having fence separators nailed to the



THE WHITNEY BEE-ESCAPE CASE FOR CLEARING THE BEES FROM COMB-HONEY SUPERS.

ends of the holders, which have worked well, and have given me beautiful sections of honey weighing as near 16 ounces each as it is possible for the bees to guess. I think, from what I have read of the Crane separator, that I'd like to try it. It seems to me that it contains a principle worth testing.

I use a stand six inches high, similar to those advertised in the catalogs, for hives to

stand on, having an alighting-board of easy incline for the bees; a sled the same height as the stand, on to which can be pulled the hive for moving to any other part of the yard, or is convenient for many other uses in the yard; also a box, with convenient handle for carrying, containing smoker fuel and compartment for tools, such as a strong tack-puller for separating and lifting the ends of frames—the best instrument for that purpose as well as for many others that I have ever seen. The screwdriver so many people use and recommend bears no comparison for convenience; a long wide thin-bladed spatula, with one edge and end ground sharp for cutting deep between combs if necessary, and to remove burr-comb from top-bars. It is so limber that it can be bent and pressed flat on the top of frames, and will remove comb from two frames at a time, and to me it seems almost indispensable; a pair of surgeon's scissors with curved blades, for clipping queens' wings; a good pocket-knife and a box of matches. A smoker I carry in my hand or hang on the side of the box as may seem convenient; also a scythe, lawn-mower, and grass-sickle for keeping the grass cut short.

Now I want to describe one method (among others) I have of getting bees out of section-cases when removed from the hive, and which I like very much. There is a table on which may be placed several cases set on edge or side; then a box made of thin stuff, having a slit for an exit cut through the center of the top covered with a row of wire-cloth bee-escapes telescoped over the whole. It is amusing to watch the bees hustle to get out. This bee-escape as a queen-cell protector is the best thing to use to introduce a queen-cell to a colony of bees that I have ever tried or heard of, and they are comparatively inexpensive. I never have had a mishap in their use for this purpose. It is possible there are those who do not know how these are made. Take a piece of wire cloth $2\frac{1}{2}$ to 3 inches square, and with a plug that fits loosely a hole in a plank or board $1\frac{1}{4}$ to $1\frac{1}{2}$ inches in diameter push the cloth through the hole. It will come out in a cone form; then push a nail through the apex from the inside and work it till the head of the nail slips through and you have it complete.

For putting foundation into sections, have both the Parker and Daisy fasteners. With sections thoroughly dry, and the atmosphere right for working wax, give me the Parker by all odds.

For cutting foundation I use something like a miter-box with a carriage that slides so that it may be cut any width desired, and the spatula above described is used for the purpose, often cutting 32 sheets at a time.

For putting up frames I use a form very similar to one described in GLEANINGS a short time ago; and while some may think such an arrangement quite unnecessary I like it very much, as every frame is true, when nailed, as it's possible to be, and will hang true in any properly constructed hive,

which is not always the case when otherwise made. Then, again, while in the form the brads are driven, from which hooks are made for wiring, with a pair of small round pliers, at points designated on the form, so that all are alike. The work is rapidly done, and the completed work presents the evidence of care and neatness that is pleasing to me.

Horizontal wiring of frames is so unsatisfactory that I've never used it. The method I have adopted I've never seen described, but was given me by a very worthy farmer bee-keeper in Ohio, and to me it seems the best I know of. No more wire—if as much—is used as in horizontal wiring, and there is absolutely no sagging of the foundation. I think, if Dr. Miller were to try this method, he'd use no more wood splints. If I am permitted to attend the next meeting of the Chicago and Northwestern Association I shall be pleased to take a frame of comb built on foundation, thus wired, for exhibition.

Nearly every person with 20 to 50 colonies of bees does more or less extracting. From my present experience I'd have an extractor, even with not more than five colonies. I think the Cowan reversible is considered as good as any—if not the best. Mine is the two-basket machine, and serves my purpose well. For rendering the cappings and refuse comb into wax the solar wax-extractor works for nothing and boards itself. This pleases me very much, for it seems coming nearer to getting something for nothing than does any other legitimate business that I know of. There are many other appliances, such as frame boxes for use in examining colonies; swarming-boxes, of which I have three; drone-traps, etc., all of which are used in most if not all bee-yards, but which it seems unnecessary to describe in detail.

Now, it may be said, "You have talked a good deal but said little." I feel myself that this is true; but one must remember that this is an exhaustless subject, and one about which hardly any two agree; and in talking we are apt to skip along here and there, and, to some, seem to miss many important points. Before I close, however, I wish to say a word to beginners in bee-keeping. *Do not buy complicated hives and other appliances; do not use different-sized hives, taking different sizes of frames, if you can avoid it; do not buy cheap material of any kind because it is low in price. Buy standard goods of the best quality for every thing needed in your work, and do what you do in the very best manner possible.* This presupposes that you have subscribed for at least two of the best periodicals on bee-keeping, and that you are the owner of as many works on the subject by the best authors as you can afford. With such a beginning, if you like the work you will succeed whether you get rich or remain poor, for you will become an enthusiast and possibly a *crank*. Come to one of our conventions and listen. It will pay.

In conclusion with much hesitation I wish to refer to one other matter (though it may seem far-fetched) as an appliance to further the interests of special bee-keeping, and which

is considered by some important; and that is, a statutory provision giving bee-keepers under certain conditions a monopoly of prescribed territory. I would not have referred to this subject had not my attention been called to it by reading a recent article in GLEANINGS on the subject which we are now considering. If we could only secure such special privilege for the specialist, wouldn't we have a bee-keepers' Utopia for such as are fortunate enough to have control of the territory? How we could surround each village and city with members of a big trust that would have a "dead sure" thing on prices! We could even give pointers to Standard Oil. How we could enjoy nectar "fit for the gods to sip," to the exclusion of the right of the farmer to supply his table, that his wife, his children, and friends might taste the sweets extracted from the flowers produced by the sweat of his brow! With what Pecksniffian exultation we could rejoice and be glad that our neighbors were not permitted to indulge in the luxuries in which we, by our special privilege, were reveling! Surely this would discount all the other appliances for the bee-keepers' use that I can think of.

A government owning the soil can lease it for any legitimate purpose, even for bee-keeping, and no one should complain. An individual should have the right to lease his premises for any legitimate purpose, even for keeping bees, without being obliged to ask his neighbors' permission. But in a country like ours, where the land is held in fee simple by the individual, who is guaranteed all the right, title, interest, claim, or demand, in law or equity, and all the rents, issues, and profits thereof, I think it very improbable that any law-making power, State or national, will ever grant a special privilege such as that mentioned above, for any business whatever. With all due respect for the opinions of others, let us dismiss this proposition as being too ridiculous to waste more time in discussing.

Lake Geneva, Wis.

SYSTEM.

The General Lack of it Among Bee-keepers;
Faulty Arrangement of Hives; Keeping
Hive Records on Pieces
of Section Stuff.

BY LESLIE BURR.

I left the "Pearl of the Antilles" in January, 1906, and since then have traversed this United States of ours from south to north and from east to west and back again. This time I wish to speak of the "faults" of bee-keepers and system, and the "lack of system."

Down on the island of Cuba there is a pretty good bunch of real bee-men. Most of them have knocked around the world for several years, and have picked up a lot of knowledge. The one great trouble down there is, they get lazy. It is too much trouble to go over the apiaries as often as they

should during the summer months, and, as a result, the colonies are not as strong as they should be in the fall. Then during the honey-flow it is easier to let the bees plug the breeding-combs full of honey than to keep them open, and the result is that, by the time the flow is over, the working force of most of the colonies has dwindled down to a corporal's guard of bees. The real trouble there is not so much the working system as it is the *human* system.

In California the trouble is on the other hand. There it is the working system. The first thing noticed by a man from the tropics is the lack of shade. The Californian seems to have a horror of natural shade; and as they also have some very hot weather they have to protect the hives to keep the combs from being melted by the sun. The most common kind of protection met with is a

6 - Good	6. Queenless gave
6/10 - Gave Super	1 frame ext
6/20 - 2 ^d Super	6/10 - Cells
6/30 - 24 Sections furnished	6/20 - Cells down gave 2 fr. ext
7/10 - 4 th Sec. furnished	6/30 - Lary
7/20 - 24 Sections furnished	7/10 O.K.
7/30 - Nothing doing	7/20 Gave Super
8/10 Removed Super	7/30 O.K.
12 Sec. fixed	8/10 Extracted

6 - Slow	6. Introduced
6/10 - Slow gave brood	queen R. Clover stock
6/20 - Slow, Killed Queen. Used Protector	6/10 O.K.
6/30 - Cell down. gave 2 fr. ext	6/20 Extracted brood frames
7/10 - Lary	6/30 Gave Super
7/20 - O.K.	7/10 O.K.
7/30 Queen a Hummer	7/20 24 Sections furnished
	7/30 Gave 2 ^d Super.

HIVE RECORDS KEPT ON PIECES OF SECTIONS.

stone-weighted double-cover combination that takes up as much time to take off and put on again as is necessary to work the colony.

When it comes to arrangement of the hives in the apiaries, inconvenience is generally carried to the limit. The system generally practiced is to place the hives in squares 10

feet apart each way, the entrances all facing the one direction, with the result that the operator is always working in the flight of the bees. Few of the bee-keepers there seem to realize that, by placing the hives in double rows, back to back, it would be more convenient, and they would not begin to anger the bees as much while working them. The honey-houses also are generally of the inconvenient type. Very few of them are so that the wheelbarrow can be run into the extracting-room and unloaded. Most of the buildings are so constructed that the supers of honey had to be carried in one at a time by hand or poked through a hole in the side of the building.

But where the greatest lack of system is shown is in the working of the bees themselves. The hit-and-miss method was much in evidence. Very few are the apiaries where the apiarist can walk with you down a row of hives and tell you the exact condition of each colony. But in this I do not know that California beekeepers are any further behind than those in other parts of the world. The general idea among bee-men is that, to keep records of the colonies, it must be done in a book; and for the benefit of those I will give some of the records as I keep them, which were kept on pieces of sections tacked on the covers of the hives.

For queenless colonies it is generally a good idea also to use stone signs. A small stone on the front of the cover means absolute queenlessness in the center cells; and at the back end, for a virgin queen. The stone makes such colonies easily found, and attended to when you do not care to work the entire apiary.

Shreveport, La.



MASSACHUSETTS AS A HONEY STATE, A FREE COURSE IN BEE CULTURE AT THE AGRICULTURAL COLLEGE

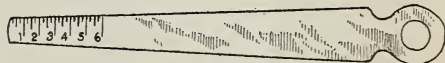
Massachusetts is not what would be called a honey State, for, while its consumption of honey is very large, its production of it is very scant. Nor should it be so; for, climate aside, Massachusetts ought to be as good as many of our Northern States, and certainly as good as Canada for the prudent bee-keeper. That the State is doing something to arouse an interest in bee-keeping is demonstrated by the free course in "Bee Culture" which has just closed at the Massachusetts Agricultural College at Amherst. The course occupied two weeks; but of all the students only two were men, aside from such of the seniors of the college who attended the lec-

tures when there was nothing else to do. But the women were earnest in their attention, and no doubt the knowledge imparted will be exemplified in the future.

The course included lectures on "Honey Crops," by Prof. Brooks; "Practical Bee-keeping," by Prof. Paige; "Botany," by Prof. Stone; "The Entomology of the Bee," by Prof. Fernald; and "Practical Demonstration," by Prof. Gates, of Clark University, Worcester. Dr. Phillips, of the Bureau of Apiculture at Washington, gave two lectures, one on "Queen-rearing" and the other on the "Diseases of Bees." JAS. BAYLES.
Lowell, Mass.

A GAUGE FOR MEASURING THE SLOTS IN QUEEN-EXCLUDING ZINC.

As the name implies, the above drawing represents a little tool to measure or compare one space with another, such as the slots in queen-excluding zinc. This tool is not used very often; but when we do want it, it is very convenient to have. It does not



give dimensions to the thousandth of an inch, for this would require expensive tools, but it is very accurate in comparing. A piece of galvanized iron is better for this purpose than tin. On account of the bright glistening surface of the latter it does not show marks and figures as plainly as the former. G. C. GREINER.

La Salle, N. Y.

[We use something similar for measuring our zinc; in fact, we have used it ever since we made perforated zinc.—ED.]

DRONE COMB IN SUPERS; SIZE OF EXTRACTING-COMBS; HOW TO TELL PREPARATIONS FOR SWARMING FROM THOSE FOR SUPERSEDING.

Please help me out with the following questions:

1. What is the effect of clean drone comb in upper stories on the working and swarming impulse?

2. I am using a nine-frame hive, combs $10 \times 12\frac{1}{2}$. I find it too small for extracting. Would you advise me to enlarge to a 12-frame or adopt the Langstroth or some other 10 or 12 frame for making my increase? This nine-frame hive is used almost entirely in this locality.

3. Is there any way of telling preparations for swarming from preparations for superseding? This nine-frame hive is not made as exact as it should be, and I am considering changing to a factory-made hive at about twice the cost. G. H. EVANS.

Napanee, Canada, April 3.

[1. The effect of drone comb in the upper story is bad unless you use queen-excluders.

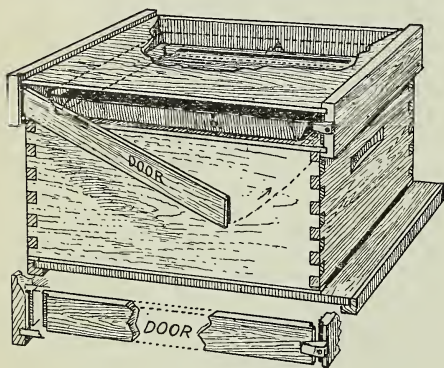
2. In any event your brood-chamber is too small. It would be very safe for you to select

a 10 or 12 frame Langstroth. The hive you now use is awkward, and requires a special system of management. It is better to go with the crowd, and watch how they do.

3. The swarming season is not the time bees do their supersedure. It is done mostly later. Your country is all right for bees. Get a standard hive and be in line.—Ed.]

A COVER FEEDER.

The cut partly describes a feeder I have adopted. It is excellent for feeding at any time of the year, but particularly in cool weather, as it is always very close to the bees. Other feeders may be just as good *after they*



SMITH'S COVER FEEDER.

are adjusted; but as long as the cover is used on a hive, this feeder is always adjusted. There is no heat lost by having to open the hive to add a story to accommodate a feeder, or in any other way by which most feeders are used.

To feed, it is simply necessary to open the little door on one side of the cover (the other side of the cover is permanently closed), and shove in a suitable dripping-pan of feed. A pan which nearly fills the chamber will hold about 10 lbs. of feed. The crack shown in the lower wall of the cover allows the bees access to feed; and when the feeder is not in use the pan may be shoved a little further over, and the crack is closed.

Palermo, Ont., Can. H. A. SMITH.

[In cold weather the pan could be taken out and a thin cushion substituted, thus making a warm cover. One objection to this is that such a cover would necessarily be rather expensive.—Ed.]

WHY THE BEES WERE FIGHTING.

Last summer, and early in the fall, bees in (Cass) county fought among themselves a good deal. There was no robbing, yet they would be strung out a foot or two from the entrance of the hive, engaged in a rough-and-tumble sort of affair. There was plenty of nectar and flowers for them to work on. Now, what was the cause of all this perform-

ance? There was no noticeable harm done by the action of the bees, but I can not account for it. There are others in this locality who would like an explanation of this subject as well as myself.

Beardstown, Ill.

H. W. DOERR.

[In spite of what you say to the contrary, it seems clear to us that what you describe was nothing more nor less than robbing. There might be plenty of flowers in blossom and still be robbing just the same, for nectar is not secreted under all conditions. Sometimes robbing will be very bad with acres and acres of white clover in full bloom. That condition existed early this summer in many parts of the United States.—Ed.]

QUEEN-CELLS BUILT WITHOUT BROOD.

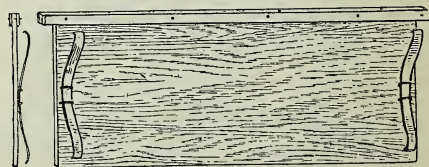
I have one hive of bees with no queen or brood, yet the bees built five queen-cells and capped them. Please advise in this matter.

Phillips, Wis., June 3. JOSEPH BAUER.

[You probably have laying workers in the hive. Bees under such conditions will often try to build cells over drone larvæ. Cut out all these "bogus" cells and give them a couple of good ones.—Ed.]

SUPER SPRINGS ATTACHED TO THE FOLLLOWER.

While looking over GLEANINGS for 1905 I read an article about super-springs in the Jan. 1st issue. I have springs for my frames that are made of old clock-springs, 1 inch wide by 8½ long. They are fastened to the dummy or division-board as per cut. This is for closed-end frames. The ends of the springs slide down the end-bars.



By having the springs fast to the board the bee-keeper is sure of putting them back, and he can put in board and springs together quicker than when they are not attached. I have used these springs for three years, and they are far ahead of any other device I have ever tried.

H. MANSPERGER.

Lewistown, Mo., Feb. 4.

TWO QUEENS IN A HIVE.

I believe I have solved the two-queens-in-a-hive trick. I have had them loose together for two weeks in an eight-frame hive, and they were both as lively as crickets this morning.

J. K. WILSON.

Lancaster, O., June 4.

[When the robbing season comes on, please report what you find.—Ed.]



OUR HOMES

by A. I. ROOT

Dearly beloved, avenge not yourselves, but rather give place unto wrath; for it is written, Vengeance is mine, I will repay, saith the Lord.—ROMANS 12:19.

On page 914, July 1, I expressed my belief that the terrible calamity that overtook San Francisco last year was a part of God's plan to teach us some useful lessons; and, dear friends, God is constantly striving to teach us useful lessons every day of our lives. When we are dull, or, worse still, contrary and disobedient, we are sooner or later punished for this stupidity, stiffneckedness, and disobedience. As in olden times, when we continually persist in breaking God's holy law the punishment finally comes with a terrible jolt, and a jolt that usually brings people to their senses. The earthquake was one of these jolts. The whole wide world looks on and reads the lesson God would teach us.

Recognizing what I have been trying to tell, apparently, they shut down the saloons in San Francisco for a few months; but the brewers, with their reckless disregard of consequences and contempt for every thing sacred and holy, brought such pressure to bear that the saloons were opened up again; and to the shame, not only of San Francisco, but to the whole of the United States as well, they are still running wide open, or at least to a great extent wide open.

When the State of Georgia just recently arose in her might, and with a mighty voice broke loose from the thralldom of the liquor-traffic, people looked on and wondered. Why did Georgia push ahead and outstrip every other State in the Union in her zeal for temperance? The answer has come from many different directions. I thought of quoting some of the statements, but our space will not permit. The disgraceful affair in *Atlanta* a short time ago opened up the way. Perhaps it was one of the *jolts* I have been telling you about. It was God's warning; and we are told on *good authority* that the terrible outrages on women and little girls throughout that region had roused the people as they had never been roused before. This nameless crime was laid at the feet of the negroes; but it soon turned out that it was not so much the *color of the skin* of the demon in human shape as it was his mental condition; and the general conviction seemed to settle down on people that the *saloons* and the *saloon business* were not only the prime cause of drunken *negroes* but of drunken parents and drunken men in every nation. To put it short, Georgia has banished the saloons because her people have made a declaration of independence, saying that their women and little girls shall be protected in their liberty, and freedom to go about in the open air, and

to go at least a reasonable distance from their home unattended, *no matter what it costs.**

I told you in these Home papers some two or three years ago about a drunken colored man in our neighboring city of Akron, 20 miles from here. This man carried a little girl out into the bushes, but was compelled to let her go on account of her screams. He was well acquainted with the little child, and would have been her friend and defender had he not been crazed with liquor. Let me explain that Akron has a population of about 60,000, and, as a matter of course, there is a hoodlum element there that thought lynching would be the right thing. They would be "right in the swim," and up with the times by hanging this man up, or by burning him at the stake as they do in other places. The saloon-keepers of the city, over 100 in number, entered heartily into the undertaking because they knew that at such a time they could sell an *enormous amount* of liquor. They were right about it; and when they got the crowd "gloriously drunk," as they called it, because this crazy mob was not permitted to get hold of that particular colored man somebody yelled out, "If they can not get that 'nigger,' give us 'any nigger.'" The police were soon overpowered. The mob held the city in a state of terror for one whole night. They burned up the city hall, costing many thousands of dollars. While it was burning, and the fire company was trying to extinguish the flames, they cut the hose. It is true that the police did in time succeed in quelling the riot, and eventually something like forty of the ringleaders in the affair were punished by a term in the penitentiary.

The above is a terrible indictment of the saloons, but we can rejoice in this case to know that the mob did *not* get its victim, and the law was finally permitted to take its course. One would naturally think that with the lynching, burning at the stake, and the terrible punishment by law when it has been permitted to take its course, not only every tramp but even every man while he is drunk would remember that swift death would speedily follow by giving way to his low and depraved passions in this direction. I have been watching this thing ever since it started up, and I am inclined to think that every case of lynching we have makes the matter *worse*. The crimes *caused*

*We are told in holy writ that God, at least sometimes, "maketh the wrath of man to praise him." Now, is it too much for our imagination to conceive that God has permitted drunken negroes, and other fiends in human shape, to assault our innocent little girls just because he finds that no less *less terrible* rouses us as a people to the fearful consequences of permitting these dens of iniquity to run wide open, not only every hour in the day and night, but all hours on Sunday? By the way, in several localities they are taking measures to banish tramps entirely; and our great railway companies have abundant reason for coming ahead with alacrity to help get rid of the tramp nuisance. I shall rejoice to see a law passed that will arrest every man who attempts to go from house to house, refusing continually the offers on almost every hand nowadays to set him at work. The man who absolutely *refuses* to work should go to the workhouse. If he is entirely unable to work, send him to the infirmary.

by the saloon evil can never be corrected by *saloon work* or by mobs of *crazy drunken men*. In fact, I am led to believe that the memory of such crazy work stirs up a frenzy in the mind of a drunken man, especially an ignorant one, so that he will go and do the very thing he has heard of. You have all heard of the mother who, when she went away from home, warned her children to be *very sure* not to poke peas into their ears. When she returned home, every last child had poked a pea into one or both ears, and a doctor had to be summoned. A wiser plan for that mother would evidently have been to put all the peas out of the children's reach and say nothing.

Well, this mob law and lynching, especially where the lynching is done by men crazed with drink, has quite an opposite effect from the punishment inflicted by law, where the criminal has a comparatively slow, deliberate, and impartial trial. Punishment by law does not seem to have the craze and contagion about it that the lynching business does. Unless we respect and reverence the laws of our land, our land is doomed.

Well, friends, our own quiet, orderly, God-fearing locality in Northern Ohio is just having a jolt or two along the line about which I have been talking. I wish to confess to you, however, before making the following extract from the Cleveland *Leader*, that I hesitated a good while before doing so; but I reasoned that not only the *mothers* but the little girls need to be cautioned; in fact, they *must* be cautioned as well as watched. Now read the following:

GREENVILLE, PA., AUGUST 13.—ASSAILANT OF MISS WHITEHEAD REPORTED STRUNG UP AT WAYNE, O. BY POSSE.

The entire section between Buffalo, Newcastle, Pa., and this city has been aroused since 7 o'clock yesterday morning over one of the most brutal crimes ever committed in this part of the country.

At midnight a posse of fifty farmers, intent upon lynching, was closing in on the Ben Jones swamp, near Wick, O., twenty-eight miles north of Warren.

They believe they have surrounded the tramp who outraged fourteen-year-old Alma Whitehead, of Turnersville, Pa., Saturday night and Sunday morning, keeping her tied hand and foot to a tree in the woods all night.

The posse has traced the man to the swamp by means of Warren bloodhounds. Every man is armed heavily with a shotgun. Although Sheriff Williams, of Meadville, Pa., and Chief of Police Frank Flowers, of Warren, are with the posse, it is believed that nothing can avert a lynching should the criminal be captured.

The crime of which the little Whitehead girl was the victim was undoubtedly premeditated. She is the daughter of Rev. J.M. Whitehead, of Turnersville, head of the most respected and looked-up-to family in the town. She is extremely pretty, with a dark complexion, and known for her beauty through the entire countryside. She is one of the most popular girls of her school.

Saturday afternoon Alma was playing with girl friends. They noticed a heavy, thick-set tramp, with sandy, bushy hair and mustache, one eye gone, watching her. She thought nothing of the affair at the time, however.

Shortly before 7 o'clock Saturday evening her mother sent her to the home of a neighbor for some butter. That was the last seen of her until 7 o'clock yesterday morning, when she came running into her home and fell sobbing and fainting on the floor in front of her distracted mother, telling her story, mingled with tears of shame.

Shortly after she had left the house, she told her mother, the tramp met her. She tried to run away, but he seized her before she could escape. He carried

a big coat which he threw over her head until it nearly smothered her. Running swiftly out of the town in the evening dusk, he carried her to the woods near the house. There he bound her hand and foot to a tree.

All night long the tramp kept her in the woods. At 7 o'clock yesterday morning, when she had become so weak that she could scarcely stand, he released her, telling her to go home, but threatening to kill her should she ever breathe a word of what had taken place in the woods. He then ran away, leaving her limp on the ground.

After a few minutes her courage returned, and with it a little of her strength. She staggered to her feet, and started for home.

In the *Leader* for August 20, one day later, we have the sequel as follows:

MEADVILLE, PA., August 19.—Cringing and quaking in momentary expectation of being torn from the hands of a deputy sheriff by the crowd which formed a gantlet from the jail to Magistrate Powers' office late to-day, Henry W. Wagner, the assailant of Alma Whitehead, improved the first opportunity to plead guilty, anxious to get back to the security of the jail.

He admits everything, offering in palliation, "I don't know why I did it."

Wagner is a German, twenty-seven years old. He is a typical tramp in dress and general appearance. He says he recently worked in a foundry at Lorain O.

The maximum penalty for his crime is \$1000 fine and fifteen years' imprisonment. The report from Turnersville is that Miss Whitehead will recover.

Now, friends, this is not all of it. Only a few days before this, and not much more than a dozen miles from where I sit dictating, a young woman who was employed in Akron got off an electric car and proceeded to make a short cut to her home in a path through the woods. As soon as she was out of sight of everybody a tramp grabbed her, and in the terrible struggle that ensued he tore nearly all the clothing from her body. After pounding her into insensibility he tied her hands and feet to four stakes which he had previously driven into the ground for that purpose; and then, remembering that her torn clothing might lead people to follow him, he went back and gathered the bits up. While he was absent she revived and worked herself loose by pulling a stake from the ground, and then ran to some neighbors and gave the alarm. An officer of the law was informed, but he stupidly neglected to rouse the neighborhood until sufficient time had elapsed to enable the fellow to jump on to a freight-train and get away.

These two events have occurred right here near my home, in a thickly settled community. Now, then, what does it mean? and why has God seen fit to *permit* such terrible outrages to go unpunished—outrages against helpless women and children? The fourteen-year-old girl was a minister's daughter, educated and refined—one of God's jewels. You may remember that, in a recent Sunday-school lesson, they tried again and again to teach Pharaoh to have some respect for God's chosen flock of people, and to permit them to depart by themselves that they might be a nation after God's chosen plan. When all else failed, and Pharaoh continued to harden his heart, the first-born in Egypt was stricken down. The blow fell on comparatively innocent children.

We sometimes ask the question, "Why has God permitted such demons in human form to prowl about the country, seeking to lay

their filthy hands on our bright, pure, harmless, innocent little girls?" Well, the opinion of your old friend A. I. R. is that God has *not* permitted such men to roam at large: It is men in office who do it. It is you and I who have failed to raise our voices and make a protest against open saloons in our land, or, worse still, our immediate neighborhood.* We have not waked up as Georgia did. From the accounts in the papers it would seem that women and children did more rejoicing when the breweries and whisky-shops were banished from that State than the voters themselves.

Here is another clipping from that same *Cleveland Leader*; but I am ashamed to be obliged to note that neither the editor nor any one else saw fit to make any footnote against the publication of such a statement. Read it and see what you think of it:

RECORDS OF ARMY PLEA FOR CANTEN; JUDGE ADVOCATE'S REPORT ARGUES ABOLITION A MISTAKE.

WASHINGTON, August 18.—The annual report of General Porter, acting Judge Advocate General of the Army, presents a strong plea for the restoration of the army canteen, and backs up its conclusions with figures.

The report dwells upon the evil results following the passage of the anti-canteen act, which, it is said, undoubtedly has caused the location near military reservations of resorts for the sale of intoxicating liquor which pander to the appetites and passion of those enlisted men who, largely by reason of the prohibition in question, frequent the same. These resorts are beyond the control of the military authorities, and their presence is highly detrimental to military discipline. If the men were permitted, as under the canteen system, to procure a reasonable amount of drinks in barracks and under the supervision of their officers, the effect undoubtedly would be conducive to military discipline and reduce the number of court-martial trials for offense due to drunkenness.

I shall have to confess, friends, that I do not know any thing about General Porter who is quoted; but even if he is acting Judge Advocate General of the Army, there is something queer about this man. This whole thing is gotten out by the brewers, because they are grabbing at the last straw to save—I was going to say themselves, but I mean their business, from destruction. The destruction comes the other way. When these things are sifted down we find every time that it comes from some *intemperate official*.

Let me quote again: "These results are *beyond the control* of the military authorities." What does it mean in this United

* Since clipping the above from the *Leader* I discover the *Plainsdealer* of the same date contains substantially the same thing as that of the *Leader*; but they give the following additional, in quotation-marks, indicating that they got it from another source.

"If legislation prohibiting saloons within one and one-eighth miles of a military post were followed in all States the effect would undoubtedly be conducive to military discipline, and reduce the number of court-martial trials for offenses due to drunkenness."

† When the Anti-saloon League of Ohio was first started it was my privilege to contribute the first \$500 through Mr. Metcalf, of Elyria, who gave a like sum. Brother Metcalf explained to me that the reason of his opposition to the open saloon was a lot of picture cards he took out of his pocketbook, spreading them out. They were obscene pictures calculated with hellish ingenuity to inflame the passions of youth or those already inflamed by drink. He said he had himself gone into saloons and picked these cards up from off the counters in various cities; and he said that that alone was a sufficient reason for his fighting the saloon as long as God gave him breath.

States of America to have a great general make such a statement? Are they *unable* to prevent the establishment of low dives, and gambling and drinking places, close by where our armies are located?† What a confession! While I have the other two clippings in hand, here is still another one that was just handed me, clipped from the *Baltimore News* of Aug. 16; but I have space to quote only the head-line:

"All North Carolina may soon be 'dry.'"

May God be praised for such things that are coming now thick and fast; and may we each and all rejoice that it is our privilege here in the United States to hasten the day when the open saloon shall be no more.

MY DUCK STORY.

Yes, friends, and it is a good one too. It is going to be a five-pointed story, and each point, I think, is something not only of value but not generally known. The first point I got from a neighbor, Mr. Philip Bolei, who lives two miles out of town. Last winter he had four ducks, mostly Pekins, but with a dash of Indian Runner blood. A bee-keeper who was here for supplies sold him a Pekin drake for \$1.50. He began in February setting the duck's eggs under a hen; and last evening Mrs. Root and I went over to see his family of ducks, all from the four he wintered over. He has raised over 200, big and little. Those hatched in February sold for 60 cents each; and a brighter, happier family of ducks I never saw. The above (from *four ducks* to 200 in one summer and the summer not nearly over—only August 10th) is point No. 1.

Point No. 2 comes in here. He proposes to sell all but four of his best before winter comes, so he has no expense of wintering a large flock. Of course, he has to winter enough of the common fowls so as to have sitting hens for business in the spring. He owns two incubators; but either they are not first-class or else he has not got the "hang" of them. He says that a great part of the time 12 eggs under a hen brought forth 12 ducks. Now, with this way of managing he is at no expense for buildings, such as chicken-coops, fixtures, or any thing of the sort. His ducks have the range of the farm, and are out of doors, when it gets to be warm weather, day and night—*no expense for buildings, structures, nor appliances*—that is the second point.

I caught on to my third point a few days ago when I went over to pay a visit to Mr. Vernon Burt, the champion bee-keeper, not only of Medina Co., but I might almost say of Ohio. Well, friends, Mr. Burt's *mother* is in the duck business, and I was alive with astonishment and enthusiasm when she informed me that her young ducks, just hatched, did not have any mother nor any brooder, and *did not need any*. I remonstrated.

"Why, Mrs. Burt, these baby ducklings certainly need a mother till they get old enough to eat—say 48 hours."

"Mr. Root, my ducklings are always old enough to eat. I never saw a duck that would not eat if it had a chance. They will eat, and take care of themselves almost as soon as they are out of the shell—that is, in any decent kind of summer weather."

I saw them when only a few hours old at their home, contented, without any mother or brooder. Of course, they had a nice warm little box just right for the number of ducks to get into at night. Well, Mr. Bolei said the same thing. He soon found that, instead of the ducks following the hen, the hen would just follow the ducks; and so they took the hen away from them, and the ducks got along all right, and the hen soon commenced laying again.

Now, if I did not see this thing going on, at two different "duck-farms," I should be incredulous. No mother or brooder is point No. 3.

I suppose there needs to be, of course, a sufficient number of ducks—say a dozen or more—together to keep up the animal heat during very cool nights. Of course, you will have to protect them from rats and other enemies; but any up-to-date farmer ought to be ashamed of *having* rats on his premises.

I do not believe anybody ever saw healthier ducks. In fattening his ducks for market Mr. Bolei gives them all they will eat; and he has a novel scheme for giving them corn without the chickens being able to get it. A tight box that will hold water, say four or five inches deep, contains their corn. The ducks can, of course, reach down in the water and get the soaked corn, which is just to their taste. The chickens can see the corn, but they can not stand the water. This is point No. 4.*

Now, point No. 5 I have not quite worked out; but it does work out over in China, and the Chinese are ahead of us in at least one industry—the duck business. The following letters explain themselves:

Mr. A. I. Root:—As you are interested in ducks and incubators I send you a letter received from my cousin in China, describing their method of hatching ducks.
Ellwood City, Pa. J. A. EVANS.

DUCKS AND DUCK INCUBATORS IN CHINA.

The duck-hatching establishments here turn the lit-

*The above method of having corn or other grain right before the ducks, where they can get it whenever they want it, and yet have it secure from other prowlers, even rats and mice, is of more moment than you may think at first. I am now feeding my six Indian Runner ducks in this way; and I can put corn enough in their water-tank to last them a week, and it is securely locked up from any other vermin that I know of. We often hear about automatic feeders for poultry; but can you imagine any thing more automatic than this? The corn keeps perfectly good and sweet for possibly a week or more for ducks, and it seems to be just to their notion. You may remember that, last winter, I wrote about my Leghorn chickens just beginning to fly, and I called them my "Florida flying-machines;" but my Indian Runner ducks are now just about ten weeks old, and they are operating with their new-found wings every day, especially toward evening; and I do not know but I find about as much enjoyment in seeing them learn to fly as I shall have, if I live long enough, in seeing *people* learn to fly. May be, through a kind Providence, I may have an opportunity to do a little flying myself. May God be praised for the unexplored opportunities that still open up right before us in so many different directions.

tle chaps out by the thousand during the season. The process of artificial incubators is so old that the duck has long since lost the nesting instinct. The eggs are put into bushel baskets which are placed on a revolving platform in a small oven with a fireplace at one side. After two weeks the eggs are transferred to larger beds and well covered with pads. The only thermometer used is the eye. The eggs are touched to the eyelid to know whether they are warm enough. After the third day all eggs are candled, and the non-fertile ones put on the market.

Yü-yiuo, China, Jan. 25.

J. E. SHOEMAKER.

Now, friends, do you catch on to point No. 5? I told you about seeing ducks, after they were hatched, getting along right in summer weather without any mother or brooder. Well, these friends of ours, the Chinamen, have gone further if I am correct. They have discovered that the animal heat from strong fertile eggs, a sufficient number of them, will *hatch out* ducks in a warm climate, without any artificial heat in the way of mother or incubator. The friend in China who writes the letter does not give us the full particulars; but my impression is that the duck eggs, after the second week, are so well insulated in beds with "pads," as he expresses it, that they hold the animal heat until hatching time. The principle must be the same as that of the fireless stove for cooking, that is now making such advances. We have one already installed in our home, and I expect to tell you more about these later. It was purchased of the Caloric Fireless Cook-stove Co., Grand Rapids, Mich. Now can any of our readers tell us more about the way they hatch ducks in China without any artificial heat after the fifteenth or twentieth day?

YELLOW SWEET CLOVER, AND ITS WONDERFUL PROPERTIES AS A NITROGEN-GATHERER FROM THE AIR.

We clip the following from a late issue of the *Scientific American*. Of course they do not call it sweet clover; but a reference to page 1036 of this journal settles the question.

The possibilities of certain grasses being utilized for the purpose of fertilizing, and thereby reclaiming for cultivation, waste stretches such as sand dunes, has been strikingly demonstrated upon King Island, which is situated between the coasts of Tasmania and the Australian mainland. This island has always been an arid waste of sand and other non-arable soil. Some few years ago, however a vessel was wrecked off the island, and, when broken up under the force of the waves, a number of the sailors' mattresses, which were stuffed with the yellow-flowered clover, a kind of grass, were washed ashore. A certain quantity of seed was contained among the stuffing, and in due course these took root, and, owing to their prolific growth, in the space of a few years covered the sandy stretches with rich verdure. It is a long-established fact that clover and other leguminous plants have the peculiar capacity of fertilizing a waste soil, owing principally to the action of bacteria, thereby enabling the plants to draw nitrogen directly from the atmosphere. In the case of King Island, owing to the properties of this yellow-flowered clover, what was previously a waste stretch of sand is now one of the richest grazing districts in the Australian continent. The growth of the plant completely changes the character and color of the soil from a dirty white to a rich dark brown or black loamy nature.

When I get back to Florida again during the coming winter I am going to try very hard to get yellow sweet clover to flourish in some of the sandy waste places in that region.

Bee-keepers' supplies, Italian queens. Send for a free catalog. ARTHUR RATTRAY, Almont, Mich.

ITALIAN BEES and queens—Red-clover strain imp'd mothers. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN BEES, queens, and Root's bee supplies. E. SCOGGIN, Carlsbad, N. M.

I club a high-grade Italian queen with GLEANINGS, new or renewal. W. T. CRAWFORD, Hinston, La.

ITALIAN BEES and queens—red-clover and golden strains. E. A. SIMMONS, Greenville, Ala.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York City.

ITALIAN bees and queens bred for honey; price list free. B. F. YANCEY & SON, Angleton, Tex.

FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN AND CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Iomosa, Cal.

MAPLEWOOD APIARY.—Choice comb honey, Italian bees and queens. GEO. H. REA, Reynoldsville, Pa. R. 2.

ROOT'S SUPPLIES at factory prices; wholesale and retail. ANTON G. ANDERSON, Holden, Mo.

ITALIAN BEES, queens, and bee supplies. H. H. JEPSON, 182 Friend St., Boston, Mass.

ITALIAN BEES, queens, comb and extracted honey. A. T. DOCKHAM, Rt. 1, Box 95, Eagle Bend, Minn.

ITALIAN BEES, queens, beeswax, honey, and bee-keepers' supplies. M. E. TRIBBLE, Marshall, Mo.

FOR SALE.—Bee-keepers' supplies. Write for catalog. Lengst & Koenig, 127 S. 13th St., Saginaw, Mich.

FOR SALE.—Golden and red-clover Italian queens. WM. A. SHUFF, 426 Osage Ave., Philadelphia, Pa.

ITALIAN BEES and queens—red-clover and golden strains. E. E. MOTT, Glenwood, Cass Co., Mich.

SWARTHMORE Golden-all-over, Caucasian, Banat, Carniolan, Cyprian queens. E. L. Pratt, Swarthmore, Pa.

GOLDEN yellow Italian queens—my specialty. Price list free. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES, queens, honey, and Root's bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

FOR SALE.—Bees, queens, and bee-keepers' supplies (Root's goods), at factory prices. F. W. VAN DEMARK, Mehan, Okla.

FOR SALE.—Root's bee-supplies, wholesale and retail; factory prices; catalog free. Beeswax wanted. W. E. TRIBBETT, Staunton, Va.

I must say to my friends, please do not send me any more orders for queens this season, as my health is so poor I find it impossible to continue queen-rearing. Thanks to all my friends for their very liberal patronage. W. W. CRIM, Pekin, Ind.

GOLDEN-ALL-OVER Caucasian Banat bees and queens. We book orders for early queens from our best imported breeding stock for honey, with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, \$1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

IMPROVED ITALIAN QUEENS now ready; nuclei and colonies about May 10, Danzenbaker or L. frames; 20 years a queen-breeder; 500 colonies to draw from. Circular and testimonials free.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

ANGEL'S GOLDEN BEAUTIES and his bright three-banded Italian Queens have but few equals and no superiors. A fine large queen of either strain for \$1.00; an extra select breeder for \$2.50. I have had 12 years' experience at queen-breeding. Address

SAMUEL M. ANGEL, Route 1, Evansville, Ind.

Special Notices by A. I. Root.

A JUST PENALTY.

We learn from the papers that the tramp mentioned on page 1156 is to be punished to the full extent of the law, and will be sent to the penitentiary for 45 years. This is none too severe. I have been hoping that we might soon have laws that would make the penalty for such an offense the same as that for murder; and I am told that such is already the case in some States.

OUR FARMING, BY T. B. TERRY.

The above book, which has had such a large sale for many years, and sold for \$1.50, is now offered for \$1.00 bound in cloth, or only 50 cents in paper. It contains a full account of T. B. Terry's successful fight in commencing farming in a locality that was not considered at all favorable. The book ought to be worth many dollars to any farmer, especially young farmers, who will read it and plan their work accordingly. If ordered at the same time you order GLEANINGS you can have both for \$1.25 in paper covers, or \$1.50 in cloth.

SAMPLE COPIES OF GLEANINGS.

Our readers probably noticed that in a recent issue we spoke of being out of two numbers for 1906 and two more already for this year. We print 2000 extra copies of each issue over and above our subscription list. A large part of these are sent for sample copies to those who have never seen a copy of GLEANINGS. Another part is for those who failed to get their regular number or gave one of their journals to a neighbor bee-keeper, etc. For various reasons there are always more or less calls for a certain issue. Where any subscriber gives any neighbor bee-keeper one of his journals for a sample copy we are always glad to replace it free of charge; or if any particular issue fails to reach a subscriber we are glad to be told of it and replace it. But where a person is not a subscriber of GLEANINGS, and wants a copy of some special number that he has seen or heard of, we shall have to tell him the price is 5 cents. Of course, we always furnish a sample copy to any one who wishes to see what GLEANINGS is like; but we reserve the privilege of giving you whatever number we happen to have a surplus of. Some years ago I became suspicious that certain persons were repeatedly asking for sample copies without having any idea of subscribing. I saved up the postal cards and reminded one person that I had them on file, and advised him to send us pay for what he had gotten by "sponging," and he sent the pay. Of course, there is only a very small number of such men in the world, who want something for nothing. Our policy is to be liberal, and we will do almost anything for those who become interested in bee culture; and we always expect to furnish copies of our journal free of charge to any one who is interested in bees and thinks he may subscribe for our journal. This one sample copy ought to be sufficient, and therefore we ask those who wish a second copy or one of a particular issue to send along 5 cents for it.

THE ARMY CANTEN—SHALL IT BE RESTORED?

On page 1157 I quoted from the *Cleveland Plain Dealer* concerning this matter. Right here I wish to submit a quotation from the *Woman's National Daily*, the concluding part of which is right to the point—don't you think so?

The Judge Advocate of the army explains that there is a great deal of liquor-drinking by the enlisted men where low doggeries are allowed in the vicinity of military posts. He points out that Nebraska prohibits drinking-resorts within two miles of military posts, and two other States have laws prohibiting the

sale of liquor within a mile of such posts. That shows the good work the temperance people are doing. They are meeting the contention that the abolishment of the canteen has worked injury by affording vile resorts for the soldiers to spend their money and obtain drink. It makes no difference how much may be said in advocacy of the canteens, they are gone for ever."

MRS. LEONORA M. LAKE.

In my report of the Anti-saloon League convention I have several times spoken of the distinguished speaker, Mrs. Lake, of the Catholic Church; and I take pleasure in clipping the following from the *Catholic Universe* of August 9 in regard to this good lady's work:

Mrs. Leonora M. Lake, of St. Louis, an enthusiastic and convincing speaker, emphasized chiefly the place of woman in the total-abstinence movement. It is her instinct, she said, to preserve at every cost the life she has brought into the world by so much travail and pain, and nothing else so menaces this life, so makes for degeneracy and misery and death, as the curse of drink. She touched on the terrible effects of intemperance, its cost in money, its responsibility for the filling of almshouses, insane-asylums, hospitals, and prisons, and spoke strongly of the terrible effects of parents' addiction to drink on their unborn children for generation after generation. Mrs. Lake holds that it is political cowardice that prevents more interest in the total-abstinence movement. "Look at Cleveland," she said, "with its large and powerful Catholic population. Where are the influential Catholics to-night? Afraid—afraid of the liquor element, afraid of identifying themselves with an unpopular movement."

To those of our readers who are not well acquainted with the work Mrs. Lake has done throughout our land, I might say that she by her talk has succeeded in banishing the saloons from more than one locality where the effort would probably have failed without her assistance.

SUFFERERS FROM RHEUMATISM; WHERE THEY CAN BEST GET RELIEF.

Mr. Root.—Can you or any readers of GLEANINGS give me some information in regard to what section of the country is best for "rheumatics" to spend the winter? I have been afflicted for eight years with chronic articular rheumatism, and each spring I am more crippled, until now it is with difficulty I can walk at all. I have tried all kinds of treatment, including the baths at different places, but was only temporarily benefited. How about the island where Mr. A. I. Root spends his winters? Any information will be gratefully received.

Holliday's Cove, W. Va. Mrs. L. BUCHANAN.

We gladly give place to the above; but I think I shall have to caution our afflicted friend against placing too much confidence in statements from parties who are financially interested—those having hotels, boarding-houses, sanitariums, or having real estate to sell. I think we may say that, as a rule, a warm climate is better for rheumatic patients than a colder one—especially places where the air is comparatively dry. On our island, with water on all sides of us, there is, very much of the time, a brisk sea-breeze. While this seems to suit me exceedingly well, the old residents are frequently afflicted with rheumatism, grip, and other things that we have here in the North. My opinion is that a change of climate, especially together with a change of drinking-water, also a change of habits and pursuits, oftentimes gives relief to many of our infirmities.

DOING MORE THAN YOU ARE PAID TO DO.

On page 913, July 1, I tried to make some small boys understand that the way to get a raise in wages is to do a little more than one is paid to do. The *Sunday School Times* has such an excellent editorial right along this line, that, after reading it over and over again to myself, I have concluded to give it here:

"No man can be 'kept down' who always does a little better than any one has a right to expect of him. And no man ever 'gets to the top' in any walk of life unless he does just this. It is such a simple recipe for sure success, and is so often called attention to, that the wonder is that we are all so slow to adopt it. The man who only fills his place, and no more, is likely to remain a fixture in that place, while others, who are more than filling their places, crowd themselves out into bigger, better positions. Indeed, the man who no more than fills his place is likely to lose even that place to one who gives evidence of being able to make still more of it. Christ himself struck unmistakably at the failure of stopping with our own work when he said, 'when ye shall have done all the

things that are commanded you, say, We are unprofitable servants; we have done that which it was our duty to do.' We begin to make ourselves profitable only when we do more than our simple duty."

KIND WORDS.

GLEANINGS IN "BOY" CULTURE.

I take this occasion to add my word to the many expressions of appreciation of the efforts you are making for the safe-guarding of our homes and making this country of ours a better one. Your replies to the two letters you have received from the fellows who hate righteousness were valuable, not so much because they were a good defense, for Christianity needs no defense, but as showing a *temperance in your expression* of views that was in strong contrast to the heated style of our misguided friends on the other side.

I don't have time to raise bees, but am raising boys, and shall continue to read your paper as long as I get such good "Gleanings in Boy Culture." When the boys get large enough I shall let them raise bees.

Richmond, Va.

ASA JOHNSON.

Friend J., please accept my thanks for the very high compliment you pay me in regard to my department in this journal; and, come to think of it, I do not know but *boy* culture is of fully as much consequence to our nation as *bee* culture is to the readers of our journal. What do the friends think about it—especially those who have had experience in both lines?

I like the little periodical very much, and Mrs. Simpson wishes me to say that your religious articles are helpful and good, although she thinks you *are* just a little bit "cranky" at times; but she is willing to put up with that if you will continue to write in the future as helpfully as in the past. I am a minister, and was glad to find a little religion mixed with bee culture. I think they fellowship nicely.

DeKalb, Miss., Aug. 6.

L. R. SIMPSON.

KIND WORDS FROM A LADY.

Mr. A. I. Root.—I am sure Mr. Jorgensen does not realize when he gets his money's worth. Mr. C. has taken GLEANINGS over 20 years (and kept every one); he thinks it the best *bee*-journal printed; he never looks at the Home papers. I have been reading GLEANINGS for eight years; also Mr. C.'s back numbers. I read Home papers *first*, then all articles on flowers, pollen, etc. I think it the finest magazine for the price in America. Long live A. I. R.! Keep on punching swindlers like T. W. Bryan.

Springville, N. Y., June 21. MRS. B. A. CROSBY.

Convention and Fair Notices.

The annual meeting of the Kansas State Bee-keepers' Association will meet at Hutchinson, Sept. 13, 19. All persons interested in bees are requested to be present. This meeting occurs during the State Fair, and there will be reduced rates on all railroads. Headquarters for bee-keepers will be at the Hamilton Hotel.

O. A. KEENE, Sec.

OHIO STATE FAIR.

The premium list of the Ohio Fair to be held in Columbus, Sept. 2-6, does not offer inducements equal to Indiana, Illinois, or West Michigan, and bee-keepers who are interested in making an exhibit should make the management aware of their shortcomings, so that the premiums offered next year will be in accordance with the status of the industry in Ohio. While the premium list is fair, we naturally expect something better from a rich State where bee-keeping is an established industry.

The Ontario Bee-keepers' Association have decided to ask the following prices for honey (*wholesale*): White extracted, 11½ to 12½; No. 1 comb, \$2.50 to \$2.75 per doz.; No. 2 comb, \$1.75 to \$2.25 doz.—*Canadian Bee Journal*.